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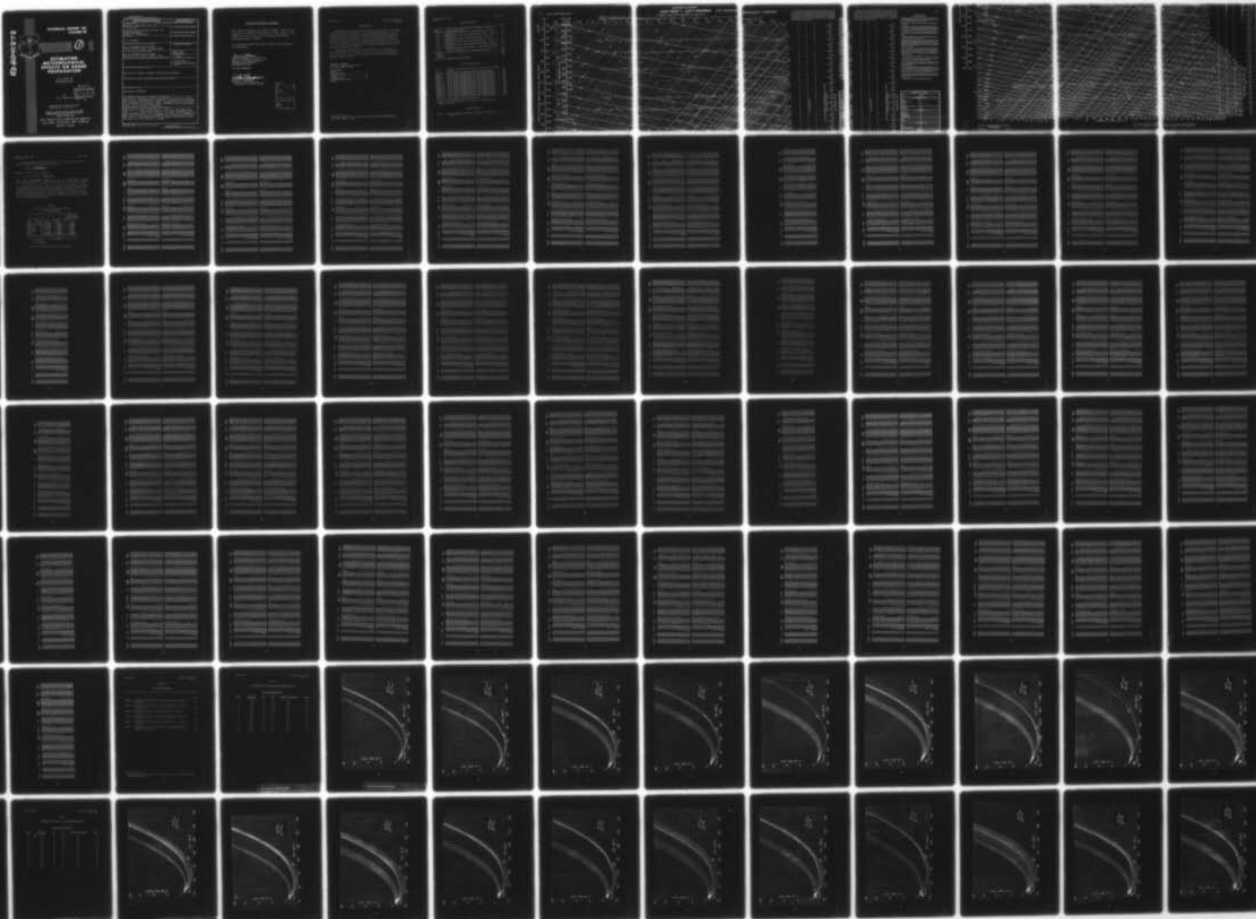
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ESTIMATING METEOROLOGICAL EFFECTS ON RADAR PROPAGATION. VOLUME --ETC(U)
MAR 65 W B MORELAND
AWS-TR-183-VOL-2

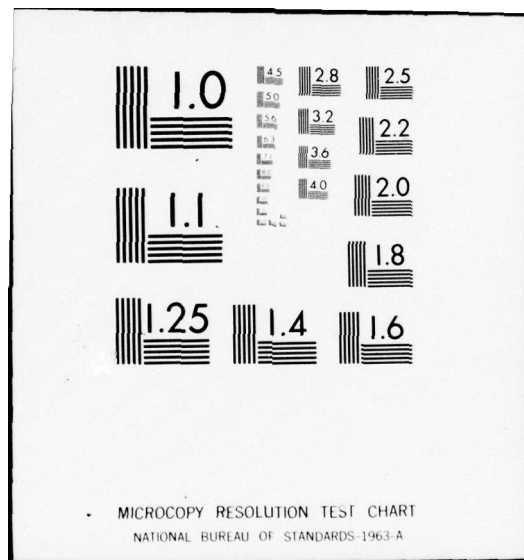
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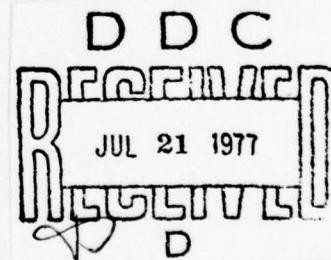
**TECHNICAL REPORT 183
VOLUME II**

①

**ESTIMATING
METEOROLOGICAL
EFFECTS ON RADAR
PROPAGATION**

VOLUME II
APPENDICES

By
W. B. Moreland



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MARCH 1965**

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report contains appendices to Volume I of the same title (ADA-). Included are tables of the CRPL exponential refer- ence atmosphere, ray tracing diagrams (of Wong), and nomograms and maps with instructions for determining and forecasting D-values. The origin of these materials and the general procedures in which they are used are explained in Volume I.		

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Vol. II

INTRODUCTION

The Appendices A, B, C, and D to this report contain tables of the CRPL exponential reference atmosphere, ray-tracing diagrams (of Wong), and nomograms and maps with instructions for determining and forecasting D-values (prepared by Hq 4th Weather Wing). These are issued together as Volume II, in order that operational users of these aids may have them in convenient form for routine station use in a book separate from the general text (Volume I). The origin of these materials and the general procedures in which they are used are explained in Volume I.

A sample copy of DOD-WPC 9-16-2, The USAF Skew T, Log P Diagram with Refractivity Overprint, is enclosed loose in this Volume for convenience of users. Supplies of this chart for operational use can be requisitioned by DOD activities from ACIC.

WILLIAM B. MORELAND
Consultant, AWS Aerospace Sciences
Scott AFB, Illinois 62226

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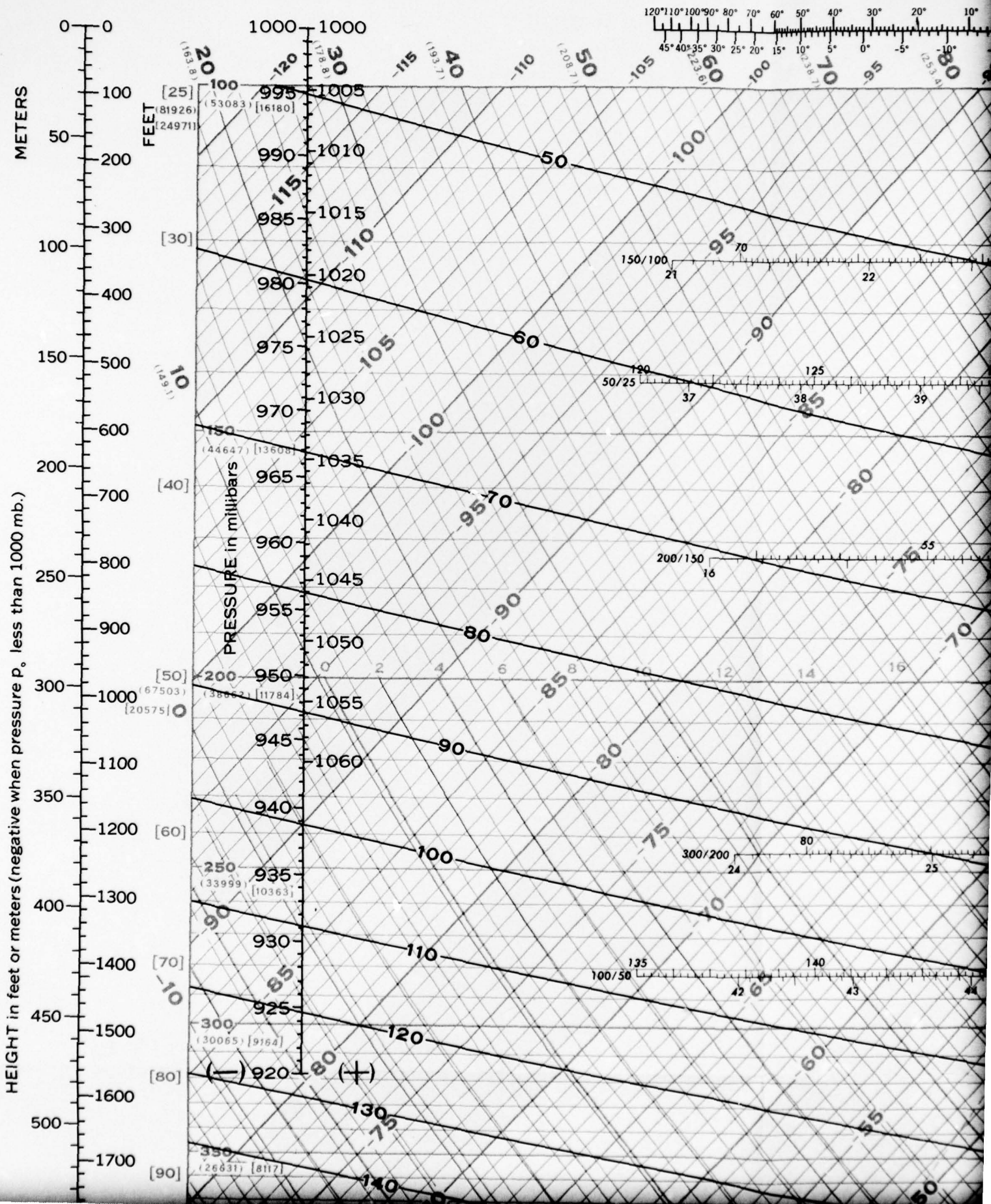
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METERS

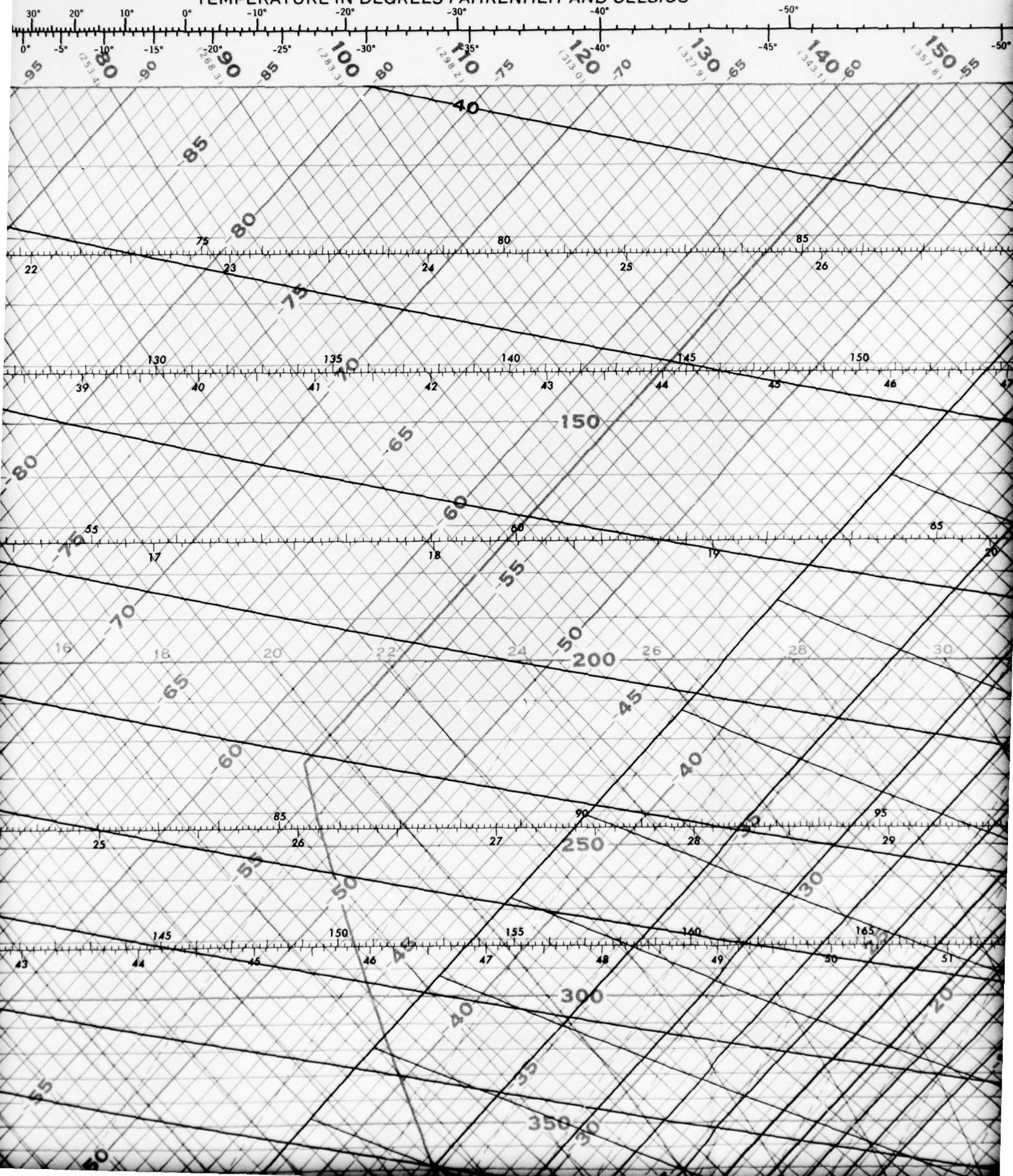
HEIGHT in feet or meters (negative when pressure p_o less than 1000 mb.)

DEPARTMENT OF DEFENSE

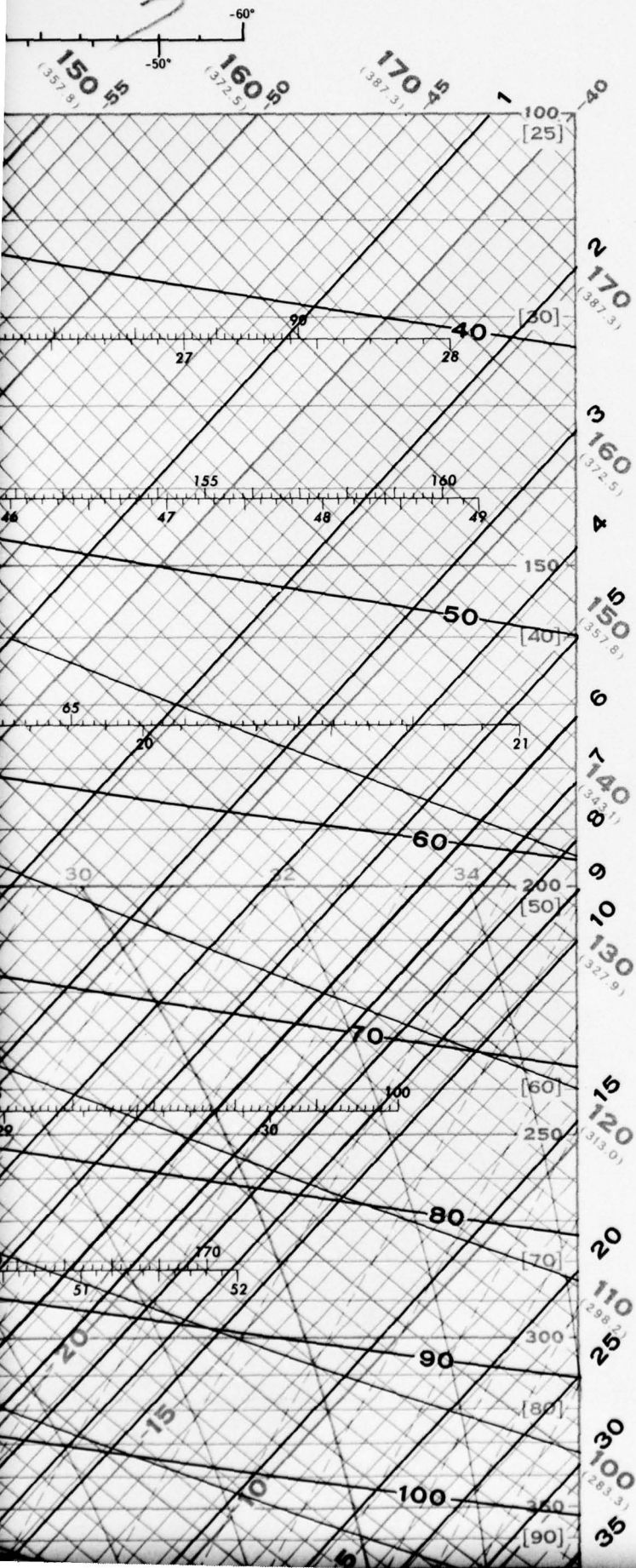
USAF SKEW T, LOG P DIAGRAM

WITH REFRACTIVE

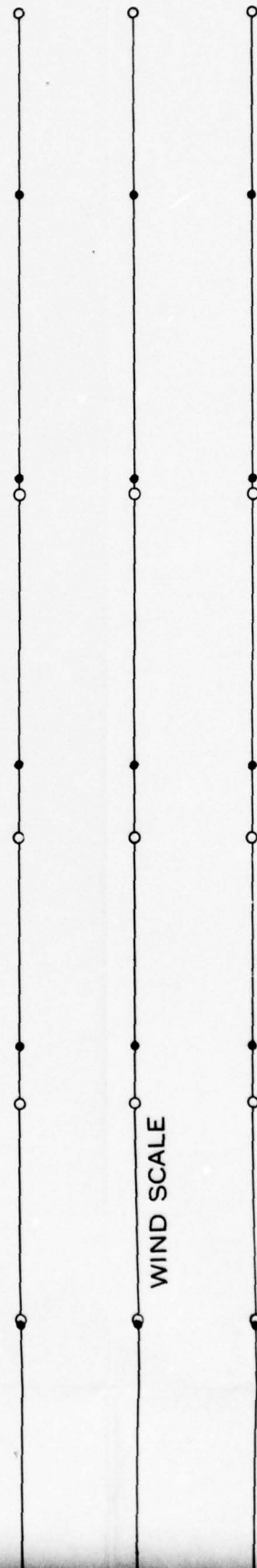
TEMPERATURE IN DEGREES FAHRENHEIT AND CELSIUS



REFRACTIVITY OVERPRINT

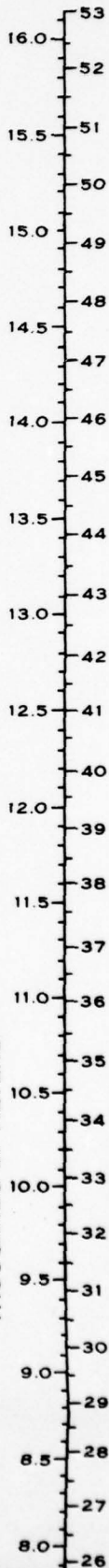


The black grid computes refractivity from the formula $N = N_D + N_W = 77.6 p/T + 373256 e/T^2$. N_D is read at dry-bulb temperature against heavy black lines sloping down to the right and labeled from 350 to 40. To find N_W go from dry-bulb temperature along light black lines sloping upwards to the left to intersection with mixing-ratio line through dew point and read N_W against heavy black lines sloping steeply upwards to the right and labeled from 340 to 1. Add N_D and N_W to obtain refractivity. For pressures lower than 100 mb, multiply by 10, e.g., plot 80 mb at 800 mb, etc., and use one-tenth of the N_D values on grid.



ICAO STANDARD ATMOSPHERE ALTITUDE

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RADIA

SUBSIE

TROPS

L.C.L.

C.C.L.

L.F.C.

MAX.

MIN.

LEVEL

The black grid computes refractivity from the formula $N = N_D + N_W = 77.6 p/T + 373256 e/T^2$. N_D is read at dry-bulb temperature against heavy black lines sloping down to the right and labeled from 350 to 40. To find N_W go from dry-bulb temperature along light black lines sloping upwards to the left to intersection with mixing-ratio line through dew point and read N_W against heavy black lines sloping steeply upwards to the right and labeled from 340 to 1. Add N_D and N_W to obtain refractivity. For pressures lower than 100 mb, multiply by 10, e.g., plot 80 mb at 800 mb, etc., and use one-tenth of the N_D values on grid.

4

EXPLANATION

ISOBARS are straight, horizontal brown lines. The heights of the pressure surfaces in the ICAO Standard atmosphere, below the pressure values on the left, are in parentheses () for values in feet and brackets [] for meter values.

ISOTHERMS (°C) are the straight, equidistant brown lines running diagonally upward from left to right.

DRY ADIABATS are the slightly curved brown lines that intersect the 1000 mb. isobar at intervals of 2°C, and run diagonally upward from right to left. The Dry Adiabats for the overlap portion of the pressure range are labeled with two values. (See below.)

SATURATION ADIABATS are the curved green lines that intersect the 1000 mb. isobar at intervals of 2°C, diverging upward and tending to become parallel to the dry adiabats.

SATURATION MIXING RATIO (in gm. per kg.) is represented by dashed green lines. The values appear between the 1000 and 950 mb. lines.

THICKNESS (in hundreds of geopotential feet and meters) of the layers 1000-700, 1000-500, 700-500, 500-300, 300-200, 200-150, 150-100, 100-50, and 50-25 mb. is represented by numbers and a graduation along the middle of each layer. The thicknesses are obtained from the virtual temperature curve by the equal-area method, using any straight line as a dividing line.

HEIGHT in geopotential feet or meters above mean sea level, or station level, of the 1000 mb. surface is obtained from the nomogram in the upper left-hand corner by drawing a straight line from the temperature scale (°F) or (°C) through the point p_0 (mean sea level or station pressure) on the pressure scale, and reading height on the appropriate height scale.

ICAO STANDARD ATMOSPHERE SOUNDING is indicated by a thick brown line.

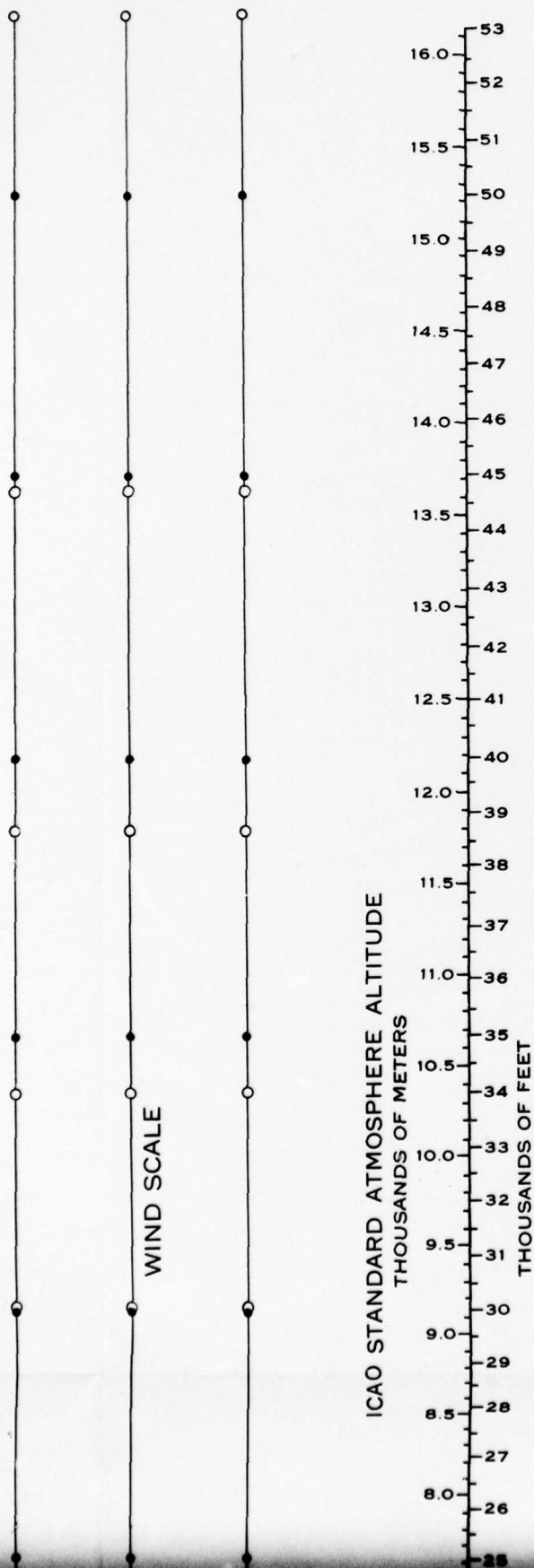
The saturated adiabats and isopleths of saturation mixing ratio are computed by use of vapor pressure over a plane water surface at all temperatures.

Extension of chart to 25 mb. has been accomplished by overlap with pressure indicated in brackets [100] at 400 mb, and [25] at 100 mb. Dry adiabats for the overlap are labeled in parentheses ().

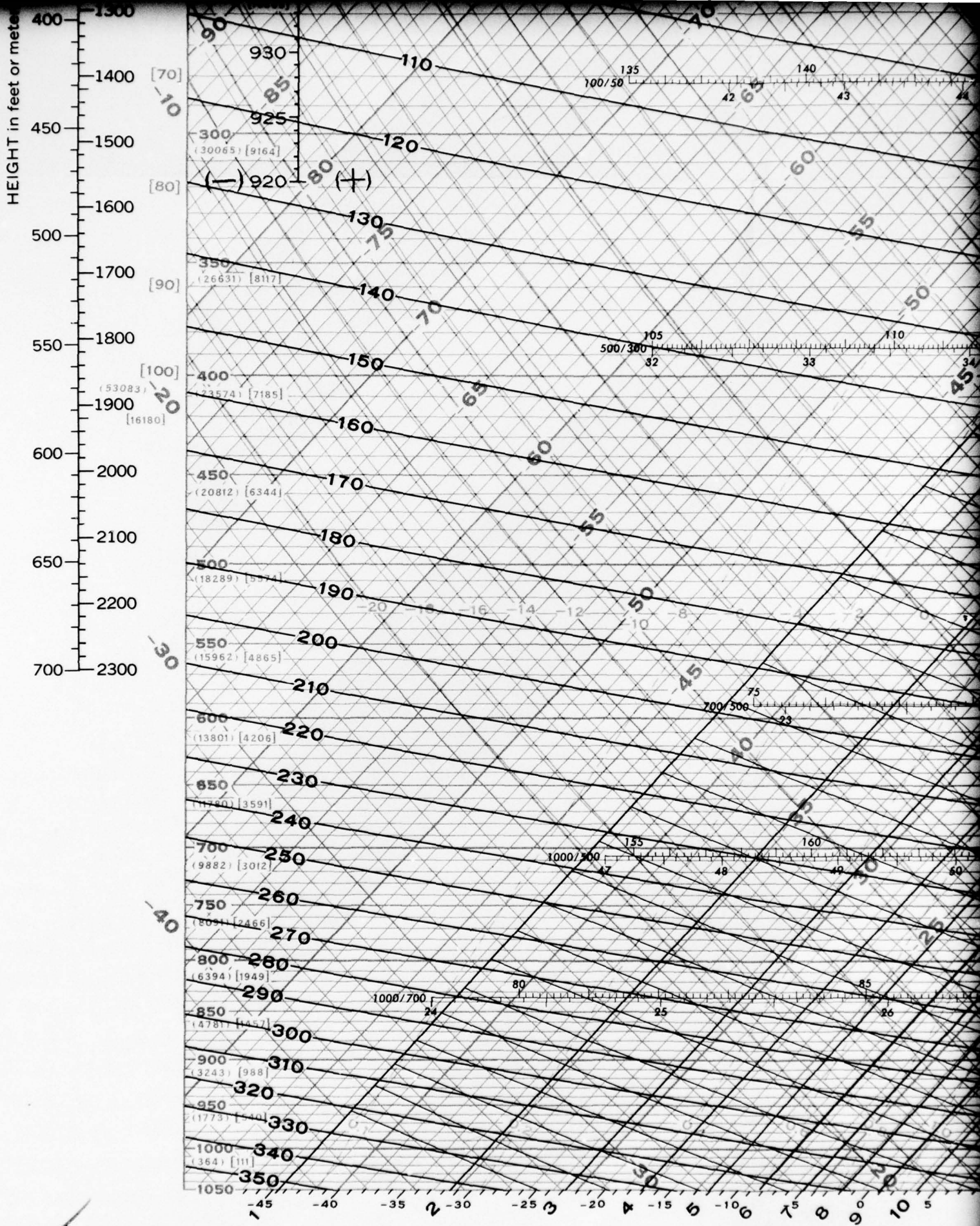
APPROXIMATE VIRTUAL TEMPERATURE may be obtained from the formula $T_v \approx T + \frac{w}{6}$ where T_v is virtual temperature in °C, T is free air temperature in °C, and w is mixing ratio in grams/kilogram. For purposes of thickness computation, use the mean temperature of the layer for T and use the mean mixing ratio of the layer for w .

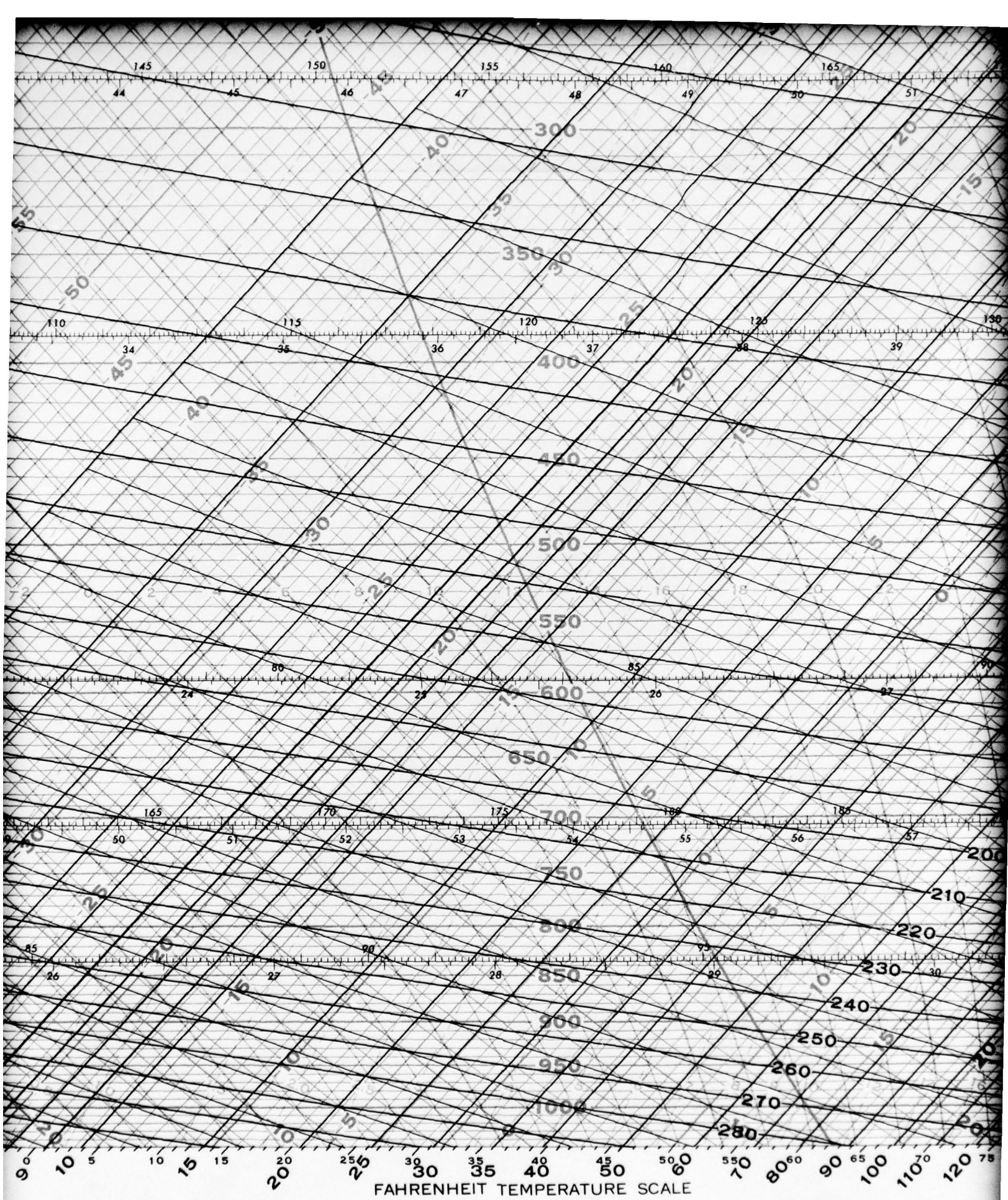
Black dots along wind scale line indicates the levels for which wind data are reported and plotted. The open circles indicate the mandatory pressure levels at which wind data are also entered.

All heights used in this diagram are in geopotential feet and meters.

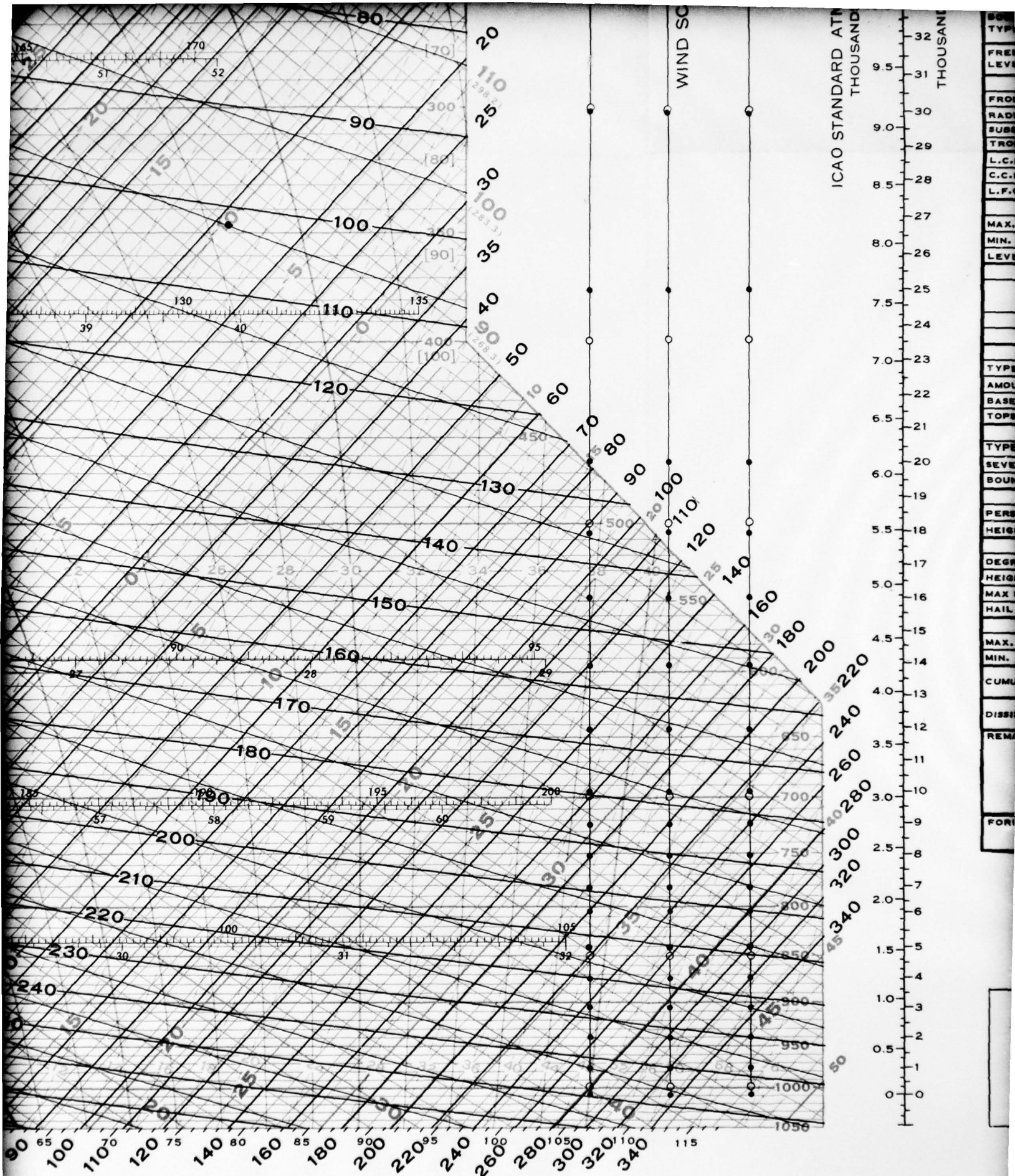


SKEW T. LOG P ANALYSIS			
TIME		TIME	
AIRMASS ANALYSIS			
TYPE	BOUNDARY	FT.	FT.
TYPE	BOUNDARY	FT.	FT.
TYPE	BOUNDARY	FT.	FT.
FREEZING LEVEL(S)			
INVERSIONS			
FRONTAL			
RADIATION			
SUBSIDENCE			
TROPOPAUSE			
L.C.L.			
C.C.L.			
L.F.C.			
SIGNIFICANT WIND			
MAX.			
MIN.			
LEVELS OF SHEAR			
STABILITY			
INDEX		INDEX	





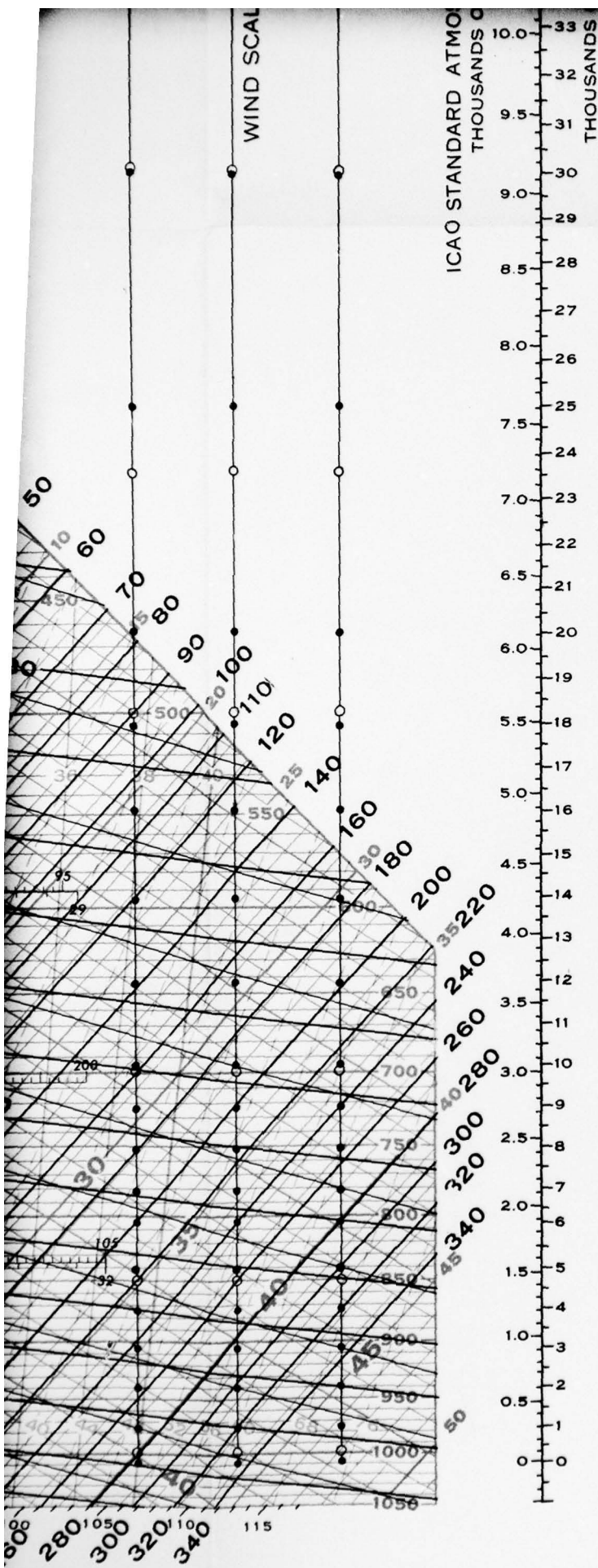
Users can assist in the improvement of DOD Weather
inaccuracies and omissions to the appropriate WEATHER
TERS, i.e., Hq Air Weather Service or Director,



in the improvement of DOD Weather Plotting Charts by reporting
and omissions to the appropriate WEATHER SERVICE HEADQUAR-
Air Weather Service or Director, U.S. Naval Weather Service.

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7



BOUNDARY TYPE		_____ FT.		_____ FT.	
TYPE		_____		_____	
FREEZING LEVEL(S)		_____		_____	
INVERSIONS					
FRONTAL		_____		_____	
RADIATION		_____		_____	
SUBSIDENCE		_____		_____	
TROPOPAUSE		_____		_____	
L.C.L.		_____		_____	
C.C.L.		_____		_____	
L.F.C.		_____		_____	
SIGNIFICANT WIND					
MAX.		_____		_____	
MIN.		_____		_____	
LEVELS OF SHEAR					
STABILITY					
INDEX		_____		INDEX	
TO		_____		TO	
TO		_____		TO	
TO		_____		TO	
CLOUDS					
TYPE	_____	_____	_____	_____	_____
AMOUNT	_____	_____	_____	_____	_____
BASES	_____	_____	_____	_____	_____
TOPS	_____	_____	_____	_____	_____
ICING					
TYPE		_____		_____	
SEVERITY		_____		_____	
BOUNDARIES		_____		_____	
CONTRAILS					
PERSISTENCE		_____		_____	
HEIGHT		_____		_____	
TURBULENCE					
DEGREE		_____		_____	
HEIGHT(S)		_____		_____	
MAX WIND GUSTS		_____		_____	
HAIL SIZE		_____		_____	
TEMPERATURES					
MAX.		_____		_____	
MIN.		_____		_____	
CUMULUS CLOUD FORMATION AT TEMP _____ TIME _____					
DISSIPATION OF LOW LEVEL INVERSION AT _____ TIME _____					
REMARKS					
FORECASTER			FORECASTER		

NUMBER	STATION
TIME (GCT)	DATE (GCT)

Appendix A

TABLES OF THE CRPL EXPONENTIAL REFERENCE ATMOSPHERES*

The tables themselves are simply a presentation of ray-tracing variables. In these tables all angles are given in milliradians and all distances in kilometers. For each different profile ($N_3 = 200$ through 450) ray tracings are given for α_0 from 0 to 900 milliradians, in approximately a geometric progression (i.e., 0, 0.5, 1, 2, 4, 8, 15, 30, 65, 100, 200, 400, and 900 milliradians), at fixed heights along the ray path. From left to right: first is given the SURFACE N , or N_3 , to 4 figures, not rounded. Exact values of N_3 used are given in Table 1. The next column is the value of α_0 , in milliradians. The "HEIGHT" is given in kilometers. The preceding quantities are given with fixed decimal points, the remaining quantities are listed as floating point numbers in the following fashion: $\pm X.XXXX \pm E$ where the first sign refers to the sign of the number, $X.XXX$, which is to be multiplied by 10 to the power $\pm E$ depending on the second sign.

Examples:

0.0000 = zero
 1.2345 = $1.2345 (\times 10^0)$
 1.2345 3 = 1.2345×10^3
 -1.2345 3 = -1.2345×10^3
 1.2345-3 = 1.2345×10^{-3}
 -1.2345 -3 = -1.2345×10^{-3}

The following quantities are listed as floating point numbers in this manner: "DELTA H" = correction to $4/3$ height at same distance to equal "HEIGHT" in kilometers; "THETA" = θ or local elevation angle, in milliradians; "DELTA THETA" correction to $4/3$ earth θ to equal THETA at same distance, in milliradians; "DISTANCE" = $r_0 \phi$ or distance along earth's surface, in kilometers; "TAU" = τ , angular bending, in milliradians; "ERROR ANGLE" = ϵ , elevation error angle, in milliradians; "SLANT RANGE" = R_0 , straightline distance from ray origin to point at h , D , in kilometers; "DELTA R" = ΔR , difference between distance from $h = 0$ to given height along ray path and slant range, in kilometers; "DELTA R-E" = ΔR_e , difference between radiopath length and slant range, in kilometers.

* From: B. R. Bean and G. D. Thayer: "The CRPL Exponential Reference Atmosphere," NBS Nomogr. 4, October 29, 1959. See sections 4.4 and 9.1.2 of Volume I for development and use of CRPL Model for refraction computations.

The following ray-tracing variables have not been printed, but can be easily calculated from those given, as follows:

$$\phi = \frac{d}{r_o} = \frac{\text{"DISTANCE"}}{\text{"INITIAL RADIUS"}}$$

where $r_o = 6373.0150 + h_s$ (kilometers)

$$\phi = \tau - \epsilon = \text{"TAU"} - \text{"ERROR ANGLE"}$$

$R = R_o + \Delta R = \text{"SLANT RANGE"} + \text{"DELTA R"}$, $R_e = R_o + \Delta R_e = \text{"SLANT RANGE"} + \text{"DELTA R-E"}$. Values of elevation of the ray starting-point, h_s , are given in Table 1.

The last profile, for $N_s = 289.0$, is a special profile which was prepared for the purpose of making direct comparisons between $4/3$ earth refraction and an exponential profile having the same N-gradient at the surface. It is intended for applications where it is desired to replace the $4/3$ earth treatment with a single standard atmosphere having the advantage of differing very little from the $4/3$ earth near the surface.

TABLE 1
Factors Employed In Exponential Reference
Atmosphere Profiles.

N_s	h_s	ΔN	c_e	Effective earth's radius factor, * k
N	ft	N	km ⁻¹	
200.0	10,000	-22.3318	0.118400	1.17779
252.9294	5,000	-30.0000	.126255	1.25551
313.0	700	-41.9388	.143859	1.40229
344.5244	0	-50.0000	.156805	1.52479
377.2161	0	-60.0000	.173233	1.71320
404.8565	0	-70.0000	.189829	1.95921
450.0	0	-90.0406	.223256	2.77761
289.0	0	-36.684830	0.13574771	1.3332410

$$* k \equiv \frac{1}{1 + \frac{r_o}{n_s} \left(\frac{dn}{dh} \right)_{h_s}} \quad (\text{note that } \frac{dn}{dh} < 0). \quad r_o = a + h_s$$

where a is taken as 6373.0150 km (3,960 miles).

SURFACE N	Q _o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	0.0	0.010	1.1714-3	1.63199	-1.9048-1	1.22548	2.90015-1	1.4500-1	1.2254903	1	2.450-3
200.0	0.0	0.020	2.3433-3	2.30816	-2.6959-1	1.73307	4.09935-1	2.0503-1	1.7330831	1	3.464-3
200.0	0.0	0.050	5.8628-3	3.65007	-4.2696-1	2.74009	6.47399-1	3.2399-1	2.7401091	1	5.471-3
200.0	0.0	0.100	1.1742-2	5.16332	-6.0560-1	3.87470	9.13630-1	4.5766-1	3.8747399	1	7.721-3
200.0	0.0	0.200	2.3534-2	7.30576	-8.6111-1	5.47886	1.28710	6.4614-1	5.4789755	1	1.081-2
200.0	0.0	0.305	3.5993-2	9.02727	-1.0702	6.76457	1.58204	7.9605-1	6.7647700	1	1.331-2
200.0	0.0	0.500	5.9310-2	1.15688	-1.13846	8.65807	2.01014	1.0149	8.6584920	1	1.699-2
200.0	0.0	0.700	8.3461-2	1.37019	-1.6560	1.02407	2.35925	1.1957	1.0241430	2	1.996-2
200.0	0.0	1.000	1.2012-1	1.64006	-2.0105	1.22336	2.78619	1.4203	1.2234832	2	2.359-2
200.0	0.0	1.524	1.8546-1	2.02959	-2.5475	1.50886	3.36861	1.7340	1.5090893	2	2.855-2
200.0	0.0	2.000	2.4611-1	2.32996	-2.9837	1.72714	3.78826	1.9671	1.7274765	2	3.213-2
200.0	0.0	3.048	3.8395-1	2.88890	-3.8517	2.12852	4.49402	2.3774	2.1291526	2	3.819-2
200.0	0.0	5.000	6.5514-1	3.72658	-5.2939	2.71806	5.36331	2.9312	2.7193838	2	4.572-2
200.0	0.0	7.000	9.4881-1	4.43680	-6.6399	3.20742	5.93605	3.3476	3.2096062	2	5.072-2
200.0	0.0	10.000	1.4158	5.34356	-8.5054	3.81971	6.47135	3.8078	3.8234408	2	5.548-2
200.0	0.0	20.000	3.1409	7.67811	-1.13840	5.35084	7.13961	4.6808	5.3613885	2	6.182-2
200.0	0.0	30.480	5.1265	9.55767	-1.8423	6.55908	7.29376	5.1501	6.5789120	2	6.361-2
200.0	0.0	50.000	9.0953	1.23227	-2.5303	8.32494	7.33818	5.6129	8.3665460	2	6.449-2
200.0	0.0	70.000	1.3379	1.46154	-3.1032	9.78702	7.34185	5.8739	9.8558305	2	6.472-2
200.0	0.0	90.000	1.7806	1.65849	-3.5955	1.10428	7.34214	6.0435	1.1143014	3	6.490-2
200.0	0.0	110.000	2.2342	1.83356	-4.0332	1.21590	7.34216	6.1651	1.2294263	3	6.500-2
200.0	0.0	225.000	4.9830	2.61095	-5.9767	1.71157	7.34217	6.5156	1.7508068	3	6.520-2
200.0	0.0	350.000	8.1657	3.23422	-7.5349	2.10897	7.34217	6.6797	2.1844487	3	6.530-2
200.0	0.0	475.000	1.1510	3.74053	-8.8006	2.43180	7.34217	6.7747	2.5501365	3	6.520-2
200.0	0.5	0.010	6.4279-4	1.70687	-1.4086-1	9.06257	2.14468-1	1.0723-1	9.0625880	0	1.812-3
200.0	0.5	0.020	1.5279-3	2.36170	-2.1747-1	1.39782	3.30603-1	1.6536-1	1.3978314	1	2.793-3
200.0	0.5	0.050	4.4683-3	3.68416	-3.7257-1	2.39024	5.64624-1	2.8257-1	2.3902624	1	4.772-3
200.0	0.5	0.100	9.6900-3	5.18747	-5.5003-1	3.51740	8.29108-1	4.1532-1	3.5174450	1	7.005-3
200.0	0.5	0.200	2.0548-2	7.32285	-8.0470-1	5.11628	1.20135	6.0311-1	5.1163905	1	1.015-2
200.0	0.5	0.305	3.2257-2	9.04111	-1.0134	6.39955	1.49573	7.5265-1	6.3997550	1	1.265-2
200.0	0.5	0.500	5.4469-2	1.15796	-1.13274	8.29079	1.92331	9.7111-1	8.2912140	1	1.400-5
200.0	0.5	0.700	7.7696-2	1.37110	-1.5986	9.87221	2.27215	1.1516	9.8729055	1	1.921-2
200.0	0.5	1.000	1.1319-1	1.64082	-1.9529	1.18640	2.69885	1.3758	1.1865200	2	2.283-2
200.0	0.5	1.524	1.7686-1	2.03020	-2.4897	1.47179	3.28106	1.6889	1.4720188	2	2.778-2
200.0	0.5	2.000	2.3622-1	2.53050	-2.9558	1.69001	3.70060	1.9216	1.6903484	2	3.131-2
200.0	0.5	3.048	3.7171-1	2.88933	-3.77936	2.09132	4.40622	2.3310	2.0919502	2	3.741-2
200.0	0.5	5.000	6.3944-1	3.72692	-5.2357	2.68079	5.27542	2.8833	2.6821127	2	4.493-2
200.0	0.5	7.000	9.3023-1	4.43708	-6.45816	3.17011	5.84811	3.2984	3.1722984	2	4.993-2
200.0	0.5	10.000	1.3936	5.34380	-8.4469	3.78236	6.38338	3.7568	3.7861004	2	5.468-2
200.0	0.5	20.000	3.1096	7.67828	-1.13781	5.31345	7.05162	4.6252	5.3240010	2	6.104-2
200.0	0.5	30.480	5.0081	9.55780	-1.8365	6.52167	7.20576	5.0912	6.5415040	2	6.275-2
200.0	0.5	50.000	9.0462	1.23228	-2.5244	8.28752	7.25018	5.5498	8.3291190	2	6.356-2
200.0	0.5	70.000	1.3321	1.46155	-3.0973	9.74958	7.25385	5.8080	9.8183940	2	6.383-2
200.0	0.5	90.000	1.7741	1.65850	-3.5897	1.10053	7.25414	5.9756	1.1105572	3	6.400-2
200.0	0.5	110.000	2.2269	1.83357	-4.0273	1.21216	7.25417	6.0957	1.2256815	3	6.410-2
200.0	0.5	225.000	4.9726	2.61095	-5.9708	1.70782	7.25417	6.4414	1.7470607	3	6.420-2
200.0	0.5	350.000	8.1527	3.23423	-7.5290	2.10523	7.25417	6.6030	2.1807021	3	6.440-2
200.0	0.5	475.000	1.1494	3.74053	-8.7947	2.42805	7.25417	6.8965	2.5463894	3	6.430-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	1.0	0.010	3.7071-4	1.91400	-1.0668-1	6.86339	1.62424-1	8.1212-2	6.86334040	0.000	1.372-3
200.0	1.0	0.020	1.0157-3	2.51547	-1.7704-1	1.13785	2.69098-1	1.3460-1	1.1378605	0.000	2.273-3
200.0	1.0	0.050	3.4235-3	3.78457	-3.2588-1	2.09023	4.930673-1	2.4706-1	2.0902475	0.000	4.170-3
200.0	1.0	0.100	8.0116-3	5.25926	-4.9997-1	3.19593	7.53121-1	3.7725-1	3.1959675	0.000	6.363-3
200.0	1.0	0.200	1.7953-2	7.37388	-7.5216-1	4.77925	1.12173	5.6317-1	4.7793630	0.000	9.473-3
200.0	1.0	0.305	2.8919-2	9.08249	-9.5977-1	6.05532	1.44146	7.1178-1	6.0555195	8.000-6	1.196-2
200.0	1.0	0.500	5.0030-2	1.16120	-1.2726	7.93982	1.84052	9.2931-1	7.9402405	1.200-5	1.556-2
200.0	1.0	0.700	7.2332-2	1.37384	-1.5431	9.45175	2.18854	1.1092	9.5182110	1.800-5	1.850-2
200.0	1.0	1.000	1.0666-1	1.64311	-1.8968	1.15060	2.61453	1.3328	1.1507191	4.000-5	2.212-2
200.0	1.0	1.524	1.6865-1	2.03205	-2.4330	1.43567	3.19608	1.6452	1.4358973	6.000-5	2.705-2
200.0	1.0	2.000	2.2673-1	2.33210	-2.8688	1.65372	3.61529	1.8774	1.6540542	9.000-5	3.062-2
200.0	1.0	3.048	3.5985-1	2.89063	-3.7361	2.05480	4.32052	2.2858	2.0554325	1.600-4	3.666-2
200.0	1.0	5.000	6.2407-1	3.72792	-5.1777	2.64407	5.18941	2.8364	2.6453897	3.100-4	4.117-2
200.0	1.0	7.000	9.1194-1	4.43793	-6.5233	3.13327	5.76197	3.2502	3.1354646	4.500-4	4.918-2
200.0	1.0	10.000	1.3717	5.34450	-8.3883	3.74543	6.29715	3.7068	3.7491698	6.500-4	5.393-2
200.0	1.0	20.000	3.0785	7.67876	-1.3722	5.27638	6.96533	4.5707	5.2869305	1.120-3	6.023-2
200.0	1.0	30.480	5.0496	9.55819	-1.8305	6.48454	7.11947	5.0333	6.5043720	1.480-3	6.204-2
200.0	1.0	50.000	8.9969	1.23231	-2.5184	8.25033	7.16389	5.4878	8.2919300	1.810-3	6.292-2
200.0	1.0	70.000	1.3262	1.46157	-3.0913	9.71236	7.16756	5.7434	9.7811735	1.990-3	6.312-2
200.0	1.0	90.000	1.7675	1.65852	-3.5837	1.09681	7.16785	5.9090	1.0683333	2.100-3	6.320-2
200.0	1.0	110.000	2.2196	1.83359	-4.0213	1.20843	7.16787	6.0276	1.2219563	2.200-3	6.330-2
200.0	1.0	225.000	4.9621	2.61097	-5.9648	1.870410	7.16787	6.3686	1.7433316	2.400-3	6.340-2
200.0	1.0	350.000	8.1394	3.23424	-7.5230	2.10149	7.16787	6.5278	2.1769710	2.600-3	6.380-2
200.0	1.0	475.000	1.1479	3.74054	-8.7887	2.44243	7.16787	6.6199	2.5426575	2.400-3	6.340-2
200.0	2.0	0.010	1.5282-4	2.58136	-6.7856-2	4.36550	1.03310-1	5.1655-2	4.3655209	0.000	8.727-4
200.0	2.0	0.020	4.9641-4	3.05411	-1.2316-1	7.91443	1.87153-1	9.3616-2	7.9144690	-1.000-7	1.581-3
200.0	2.0	0.050	2.0740-3	4.16209	-2.5311-1	1.62290	3.83215-1	1.9178-1	1.6229189	0.000	3.238-3
200.0	2.0	0.100	5.5431-3	5.53713	-4.1543-1	2.65388	6.25133-1	3.1313-1	2.6539262	1.000-6	5.282-3
200.0	2.0	0.200	1.3764-2	7.57457	-6.5844-1	4.17940	9.80268-1	4.9218-1	4.1795144	2.000-6	8.282-3
200.0	2.0	0.305	2.3297-2	9.24616	-8.6155-1	5.42782	1.26665	6.3744-1	5.4280275	4.000-6	1.071-2
200.0	2.0	0.500	4.2250-2	1.17404	-1.1700	7.28609	1.68677	8.5169-1	7.2865100	9.000-6	1.425-2
200.0	2.0	0.700	6.2724-2	1.38471	-1.4381	8.84916	2.403156	1.0297	8.8498520	1.800-5	1.718-2
200.0	2.0	1.000	9.4732-2	1.65221	-1.7894	1.08245	2.45475	1.2514	1.0825749	3.000-5	2.077-2
200.0	2.0	1.524	1.5336-1	2.03942	-2.3232	1.36625	3.03370	1.5616	1.3664805	6.000-5	2.570-2
200.0	2.0	2.000	2.0886-1	2.33853	-2.7576	1.58361	3.45159	1.7924	1.5839508	8.000-5	2.926-2
200.0	2.0	3.048	3.3719-1	2.89581	-3.6230	1.98381	4.15525	2.1984	1.9844391	1.500-4	3.527-2
200.0	2.0	5.000	5.9432-1	3.73194	-5.0626	2.57225	5.02294	2.7457	2.5735778	2.900-4	4.278-2
200.0	2.0	7.000	8.7627-1	4.44130	-6.4070	3.06102	5.59498	3.1567	3.0632094	4.300-4	4.776-2
200.0	2.0	10.000	1.3285	5.34730	-8.2708	3.67279	6.12982	3.6097	3.6765275	6.200-4	5.250-2
200.0	2.0	20.000	3.0165	7.68071	-1.3603	5.20318	6.79774	4.4647	5.2137275	1.040-3	5.870-2
200.0	2.0	30.480	4.9725	9.55975	-1.8185	6.41109	6.95184	4.9208	6.4309215	1.340-3	6.050-2
200.0	2.0	50.000	8.8976	1.23243	-2.5063	8.17665	6.99626	5.3674	8.2182555	2.1620-3	6.128-2
200.0	2.0	70.000	1.3144	1.46168	-3.0792	9.63856	6.99993	5.6176	9.7073770	1.820-3	6.152-2
200.0	2.0	90.000	1.7541	1.65861	-3.5715	1.08942	7.00022	5.7794	1.0994457	1.900-3	6.160-2
200.0	2.0	110.000	2.2048	1.83367	-4.0091	1.20104	7.00024	5.8951	1.2145631	2.000-3	6.180-2
200.0	2.0	225.000	4.9406	2.61103	-5.9525	1.69669	7.00025	6.2270	1.7359225	2.200-3	6.190-2
200.0	2.0	350.000	8.1124	3.23428	-7.5106	2.09408	7.00025	6.3816	2.1695547	2.300-3	6.200-2
200.0	2.0	475.000	1.1447	3.74058	-8.7764	2.441690	7.00025	6.4708	2.5352370	2.200-3	6.180-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	4.0	0.010	4.9670-5	4.32011	-3.72364-2	2.40379	5.68865-2	2.8443-2	2.46038195	0.000	4.805-4
200.0	4.0	0.020	1.7701-4	4.61818	-7.2233-2	4.64133	1.09749-1	5.4897-2	2.46413895	-2.000-7	9.271-4
200.0	4.0	0.050	9.0235-4	5.41506	-1.6570-1	1.06214	2.50756-1	1.2549-1	1.0621560	1	2.118-3
200.0	4.0	0.100	2.8642-3	6.53144	-2.9718-1	1.89918	4.47168-1	2.2397-1	1.8992222	1	3.778-3
200.0	4.0	0.200	8.3462-3	8.32910	-5.1194-1	3.24512	7.60440-1	3.8186-1	3.2452339	1	6.427-3
200.0	4.0	0.305	1.5380-2	9.87376	-6.9963-1	4.39874	1.02507	5.1592-1	4.3989460	1	8.670-3
200.0	4.0	0.500	3.0380-2	1.22408	-9.9240-1	6.16220	1.42374	7.1888-1	6.1626280	1	1.203-2
200.0	4.0	0.700	4.7392-2	1.42138	-1.2511	7.67061	1.75647	8.9029-1	7.6713085	1	1.485-2
200.0	4.0	1.000	7.4911-2	1.68813	-1.5936	9.59617	2.16897	1.1057	9.5973590	1	1.834-2
200.0	4.0	1.524	1.2693-1	2.06862	-2.1181	1.23849	2.73788	1.4093	1.2387203	2	2.317-2
200.0	4.0	2.000	1.7729-1	2.36404	-2.5471	1.45317	3.15061	1.6361	1.4535061	2	2.667-2
200.0	4.0	3.048	2.9600-1	2.91645	-3.4050	1.84986	3.84812	2.0360	1.8504949	2	3.262-2
200.0	4.0	5.000	5.3872-1	3.74798	-4.8366	2.43507	4.71102	2.5755	2.4363928	2	4.009-2
200.0	4.0	7.000	8.0850-1	4.45478	-6.1762	2.92207	5.28099	2.9807	2.92242630	2	4.502-2
200.0	4.0	10.000	1.2453	5.35850	-8.0354	3.53230	5.81448	3.4266	3.5360393	2	4.974-2
200.0	4.0	20.000	2.8940	7.68851	-1.3360	5.06045	6.48138	4.2641	5.0710030	2	5.592-2
200.0	4.0	30.480	4.8186	9.56501	-1.7938	5.26738	6.63535	4.7079	6.2872090	2	5.772-2
200.0	4.0	50.000	8.6971	1.23292	-2.4813	8.03204	6.67975	5.1393	8.0736405	2	5.843-2
200.0	4.0	70.000	1.2905	1.46208	-3.0539	9.49346	6.68341	5.3795	9.5622730	2	5.870-2
200.0	4.0	90.000	1.7267	1.65897	-3.5461	1.07488	6.68370	5.5341	1.0849039	3	5.880-2
200.0	4.0	110.000	2.1743	1.83400	-3.9837	1.18648	6.68373	5.6444	1.1999992	3	5.890-2
200.0	4.0	225.000	4.8963	2.61125	-5.9268	1.68206	6.68373	5.9591	1.7212955	3	5.910-2
200.0	4.0	350.000	8.0563	3.23446	-7.4848	2.07942	6.68373	6.1049	2.1548987	3	5.910-2
200.0	4.0	475.000	1.1381	3.74074	-8.7505	2.40223	6.68373	6.1889	2.5205644	3	5.900-2
200.0	8.0	0.010	1.6670-5	8.16476	-1.9231-2	1.23723	2.92794-2	1.4639-2	1.2372731	0.000	2.473-4
200.0	8.0	0.020	5.6217-5	8.32631	-3.8130-2	2.44997	5.79303-2	2.8977-2	2.4500648	0.000	4.895-4
200.0	8.0	0.050	3.0008-4	8.79333	-9.2908-2	5.95462	1.40567-1	7.0345-2	5.9548570	-2.000-7	1.8187-3
200.0	8.0	0.100	1.0658-3	9.52151	-1.7886-1	1.14144	2.68684-1	1.3456-1	1.1414974	1	2.271-3
200.0	8.0	0.200	3.6341-3	1.08338	-3.3549-1	2.12398	4.97303-1	2.4977-1	2.1241142	1	4.202-3
200.0	8.0	0.305	7.4435-3	1.20619	-4.8472-1	3.04112	7.07676-1	3.5621-1	3.0413497	1	5.985-3
200.0	8.0	0.500	1.6613-2	1.40854	-7.3255-1	4.53370	1.04507	5.2765-1	4.5341440	1	8.834-3
200.0	8.0	0.700	2.8027-2	1.58663	-9.6173-1	5.86987	1.33979	6.7906-1	5.8705970	1	1.133-2
200.0	8.0	1.000	4.7824-2	1.82476	-1.2745	7.62838	1.71648	8.7505-1	7.6295940	1	1.452-2
200.0	8.0	1.524	8.7859-2	1.8155	-1.7664	1.02434	2.24994	1.1580	1.0245679	2	1.902-2
200.0	8.0	2.000	1.2851-1	2.46345	-2.1757	1.22920	2.64379	1.3729	1.2295372	2	2.000-5
200.0	8.0	3.048	2.2852-1	2.99759	-3.0053	1.61277	3.31822	1.7557	1.6134034	2	2.235-2
200.0	8.0	5.000	4.4231-1	3.81145	-4.4065	2.18554	4.16278	2.2762	2.1868635	2	2.809-2
200.0	8.0	7.000	6.8718-1	4.50830	-5.7272	2.65658	4.72469	2.6684	2.6678752	2	3.537-2
200.0	8.0	10.000	1.0920	5.40306	-7.5680	3.26986	5.25285	3.0996	3.2736005	2	4.019-2
200.0	8.0	20.000	2.6575	7.71360	-1.2862	4.78917	5.91571	3.9040	4.7997177	2	4.485-2
200.0	8.0	30.480	4.5144	9.59099	-1.7425	5.99216	6.06918	4.3252	6.0119955	2	5.093-2
200.0	8.0	50.000	8.2920	1.23485	-2.4286	7.75323	6.11349	4.7291	7.7948315	2	5.261-2
200.0	8.0	70.000	1.2415	1.46371	-3.0005	9.21269	6.11715	4.9512	9.2815110	2	5.337-2
200.0	8.0	90.000	1.6703	1.66041	-3.4922	1.04668	6.11744	5.0931	1.0567027	3	5.354-2
200.0	8.0	110.000	2.1113	1.83529	-3.9294	1.15819	6.11746	5.1936	1.1717091	3	5.370-2
200.0	8.0	225.000	4.8029	2.61215	-5.8715	1.65352	6.11746	5.4780	1.6927533	3	5.390-2
200.0	8.0	350.000	7.9372	3.23518	-7.4291	2.05076	6.11746	5.6083	2.1262403	3	5.390-2
200.0	8.0	475.000	1.1240	3.74135	-8.6945	2.37350	6.11746	5.6830	2.4918393	3	5.390-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	15.0	0.010	8.2330-6	1.50885	1 -1.0331-2	6.64653-1	1.57292-2	7.8644-3	6.6472930-1	0.000	1.329-4
200.0	15.0	0.020	2.3238-5	1.51765	1 -2.0628-2	1.32543	3.13403-2	1.5676-2	1.3255835	0.000	2.649-4
200.0	15.0	0.050	1.0806-4	1.54376	1 -5.1259-2	3.28513	7.75480-2	3.8808-2	3.2855323	1.000-7	6.552-4
200.0	15.0	0.100	3.7603-4	1.58634	1 -1.0155-1	6.47959	1.52507-1	7.6380-2	6.4804135	-2.000-7	1.289-3
200.0	15.0	0.200	1.3468-3	1.66844	1 -1.9952-1	1.26237	1.25441-1	1.4840-1	1.2625569	0.000	2.496-3
200.0	15.0	0.305	2.9291-3	1.75067	1 -2.9945-1	1.87649	4.36298-1	2.1962-1	1.8767859	0.000	3.688-3
200.0	15.0	0.450	7.1745-3	1.89427	1 -4.7712-1	2.94630	6.36298-1	3.4235-1	2.9468425	1.000-6	5.730-3
200.0	15.0	0.700	1.3022-2	2.03157	1 -6.5185-1	3.96497	9.02778-1	4.5754-1	3.9658069	1.000-6	7.627-3
200.0	15.0	1.000	2.4126-2	2.22252	1 -9.0272-1	5.37503	1.20478	6.1418-1	5.3763690	1.000-6	1.018-2
200.0	15.0	1.524	4.8911-2	2.52367	1 -1.3179	7.58228	1.65504	8.5177-1	7.5846800	1.000-6	1.400-2
200.0	15.0	2.000	7.6097-2	2.77097	1 -1.6770	9.37940	2.00055	1.0388	9.3829280	1.000-5	1.693-2
200.0	15.0	3.048	1.4809-1	3.25501	1 -2.4287	1.28553	2.61168	1.3818	1.2861793	2.000-5	2.212-2
200.0	15.0	5.000	3.1501-1	4.01701	1 -3.7407	1.82180	3.40244	1.8605	1.8231445	2.000-5	2.890-2
200.0	15.0	7.000	5.1729-1	4.68334	1 -5.0036	2.28091	3.93961	2.268	2.2831191	2.000-4	3.351-2
200.0	15.0	10.000	8.6531-1	5.54991	1 -6.7865	2.86605	4.45102	2.6312	2.8698010	2.000-4	3.792-2
200.0	15.0	20.000	2.2772	7.82298	1 -1.1981	4.35680	5.10086	3.3819	4.3673693	2.000-4	4.385-2
200.0	15.0	30.480	4.0058	9.67430	1 -1.6496	5.54690	5.25268	3.7686	5.5667455	2.000-4	4.546-2
200.0	15.0	50.000	7.5891	1.24132	2 -2.3310	7.29607	5.29669	4.1321	7.3376865	2.000-4	4.613-2
200.0	15.0	70.000	1.1547	1.46916	2 -2.9003	8.74904	5.30033	4.3280	8.8178690	2.000-4	4.629-2
200.0	15.0	90.000	1.5691	1.86520	2 -3.3904	9.99902	5.30062	4.4513	1.0099218	3.000-4	4.630-2
200.0	15.0	110.000	1.9971	1.83962	2 -3.8265	1.11111	5.30065	4.5380	1.1246318	3.000-3	4.640-2
200.0	15.0	225.000	4.6291	2.61516	2 -5.7653	1.60560	5.30065	4.7792	1.6448328	3.000-3	4.650-2
200.0	15.0	350.000	7.7129	3.23758	2 -7.3214	1.200245	5.30065	4.8878	2.0779312	3.000-3	4.640-2
200.0	15.0	475.000	1.0972	3.74340	2 -8.5859	1.232497	5.30065	4.9496	2.4433067	3.000-3	4.640-2
200.0	30.0	0.010	5.3610-6	3.00443	1 -5.1762-3	3.32996-1	7.83022-3	3.9400-3	3.3314665-1	0.000	6.660-5
200.0	30.0	0.020	1.3002-5	3.00886	1 -1.0357-2	6.65482-1	1.57355-2	7.8704-3	6.6578395-1	1.000-8	1.330-4
200.0	30.0	0.050	4.4803-5	3.02211	1 -2.5903-2	1.66005	3.91859-2	1.9609-2	1.6608184	-1.000-7	3.311-4
200.0	30.0	0.100	1.3350-4	3.04409	1 -5.1847-2	3.30799	7.78561-2	3.8992-2	3.3095278	0.000	6.583-4
200.0	30.0	0.200	4.3521-4	3.08765	1 -1.0384-1	6.56862	1.53701-1	7.7212-2	6.5717735	-3.000-7	1.299-3
200.0	30.0	0.305	9.2910-4	3.13283	1 -1.5876-1	9.94336	2.31103-1	1.1633-1	9.9482815	0.000	1.955-3
200.0	30.0	0.450	2.3126-3	3.21527	1 -2.6076-1	1.60845	5.03894-1	1.8674-1	1.6032927	1.000-6	3.127-3
200.0	30.0	0.700	4.3378-3	3.29801	1 -3.6606-1	2.22230	5.03281-1	2.5607-1	2.2235315	1.000-6	4.272-3
200.0	30.0	1.000	8.4680-3	3.44189	1 -5.2493-1	3.11513	6.96479-1	3.5505-1	3.1169764	1.000-6	5.890-3
200.0	30.0	1.524	1.8639-2	3.62188	1 -8.0476-1	4.60270	9.99913-1	5.1452-1	4.6057623	1.000-6	8.457-3
200.0	30.0	2.000	3.0874-2	3.79830	1 -1.0609	5.88474	1.24639	6.4715-1	5.8890405	1.000-6	1.054-2
200.0	30.0	3.048	6.6898-2	4.16452	1 -1.6297	8.51457	1.70873	9.0390-1	8.5220020	1.000-5	1.447-2
200.0	30.0	5.000	1.6257-1	4.78364	1 -2.6957	1.28718	2.35122	1.2852	1.2886339	2.000-5	1.994-2
200.0	30.0	7.000	2.9164-1	5.35530	1 -3.7794	1.69104	2.81178	1.5908	1.6833705	2.000-5	2.387-2
200.0	30.0	10.000	5.3306-1	6.12741	1 -5.3681	2.20237	3.26714	1.9361	2.2062556	2.000-4	2.779-2
200.0	30.0	20.000	1.6254	8.24231	1 -1.0203	3.58927	3.86985	2.5842	3.5999897	2.000-4	3.317-2
200.0	30.0	30.480	3.0672	1.00160	2 -1.4528	4.72951	4.01532	2.9130	4.7495049	2.000-4	3.465-2
200.0	30.0	50.000	6.1998	1.26808	2 -2.1158	6.43133	2.40513	3.2122	6.4731040	2.000-4	3.530-2
200.0	30.0	70.000	9.7668	1.49180	2 -2.6748	7.85797	4.06171	3.3677	7.9269620	2.000-4	3.532-2
200.0	30.0	90.000	1.3565	1.68516	2 -3.1582	9.90902	4.06199	3.4632	9.1912745	2.000-4	3.534-2
200.0	30.0	110.000	1.7533	1.85767	2 -3.5895	1.01908	4.06202	3.5290	1.0326194	3.000-4	3.540-2
200.0	30.0	225.000	4.2402	2.62774	2 -5.5147	1.151008	4.06202	3.7068	1.5493325	3.000-4	3.550-2
200.0	30.0	350.000	7.2007	3.24762	2 -7.0644	1.190532	4.06202	3.7841	1.9808130	3.000-4	3.540-2
200.0	30.0	475.000	1.0354	3.75198	2 -8.3253	1.22690	4.06202	3.8273	2.3452567	3.000-4	3.540-2

SURFACE N	Q _Q	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	65.0	0.010	4.9230-6	6.50204	1 -2.3876-3	1.53605-1	3.63510-3	1.8170-3	1.5393102-1	0.000	3.077-5
200.0	65.0	0.020	1.0784-5	6.50409	1 -4.7803-3	3.07154-1	7.26292-3	3.6319-3	3.0780502-1	0.000	6.150-5
200.0	65.0	0.050	2.8625-5	6.51022	1 -1.1976-2	7.67537-1	1.81180-2	9.0668-3	7.6916760-1	-3.000-8	1.533-4
200.0	65.0	0.100	6.6440-5	6.52044	1 -2.4041-2	1.53386	3.61003-2	1.8079-2	1.5371323	0.000	3.056-4
200.0	65.0	0.200	1.6925-4	6.54087	1 -4.8428-2	3.06220	7.16658-2	3.6002-2	3.0694784	0.000	6.068-4
200.0	65.0	0.305	3.1876-4	6.56229	1 -7.4471-2	4.66322	1.08369-1	5.4552-2	4.6732979	0.000	9.183-4
200.0	65.0	0.500	7.1074-4	6.60200	1 -1.2360-1	7.62128	1.75221-1	8.8460-2	7.6379705	1.000-7	1.483-3
200.0	65.0	0.700	1.2617-3	6.64265	1 -1.7533-1	1.06367	2.41724-1	1.2250-1	1.0660292	-1.000-6	2.045-3
200.0	65.0	1.000	2.3835-3	6.70343	1 -2.5520-1	1.51251	3.37837-1	1.7222-1	1.5159358	1.000	2.861-3
200.0	65.0	1.524	5.2124-3	6.80907	1 -4.0095-1	2.28675	4.95764-1	2.5503-1	2.2921012	1.000-6	4.200-3
200.0	65.0	2.000	8.7436-3	6.90442	1 -5.3932-1	2.97968	6.28984-1	3.2655-1	2.9868541	1.000-6	5.327-3
200.0	65.0	3.048	1.9851-2	7.11224	1 -8.6211-1	4.47201	8.91324-1	4.7141-1	4.4834466	1.000-6	7.552-3
200.0	65.0	5.000	5.2957-2	7.49118	1 -1.5145	7.13892	1.28456	7.0185-1	7.1591645	1.000-6	1.090-2
200.0	65.0	7.000	1.0319-1	7.86813	1 -2.2293	9.73578	1.58795	8.9907-1	9.7661525	1.000-5	1.340-2
200.0	65.0	10.000	2.0860-1	8.41210	1 -3.3490	1.34084	1.90833	1.1335	1.3455936	2.000-5	1.621-2
200.0	65.0	20.000	7.8523-1	1.00558	2 -7.1099	2.41854	2.37296	1.5976	2.4304326	2.000-5	2.031-2
200.0	65.0	30.480	1.6734	1.15529	2 -1.0760	3.38031	2.49574	1.8366	3.4022687	2.000-4	2.153-2
200.0	65.0	50.000	3.8351	1.39242	2 -1.6660	4.89533	2.53384	2.0476	4.9386620	2.000-4	2.199-2
200.0	65.0	70.000	6.4986	1.59862	2 -2.1812	6.21025	2.53712	2.1519	6.2809140	2.000-4	2.204-2
200.0	65.0	90.000	9.4704	1.78023	2 -2.6332	7.36824	2.53739	2.2133	7.4703450	2.000-4	2.203-2
200.0	65.0	110.000	1.2671	1.94415	2 -3.0450	8.41338	2.53741	2.2542	8.5505440	2.000-4	2.203-2
200.0	65.0	225.000	3.3876	1.2.68885	2 -4.9058	1.31616	2.53741	2.3588	1.3556128	3.000-4	2.220-2
200.0	65.0	350.000	6.0286	1.3.29664	2 -6.4263	1.70359	2.53741	2.4013	1.7793939	3.000-4	2.210-2
200.0	65.0	475.000	8.9067	1.3.79397	2 -7.6696	1.2.02079	2.53741	2.4242	2.1393572	3.000-4	2.190-2
200.0	100.0	0.010	5.0450-6	1.00013	2 -1.5490-3	9.96578-2	2.35847-3	1.1794-3	1.0015841-1	0.000	2.002-5
200.0	100.0	0.020	8.2000-6	1.00026	2 -3.1023-3	1.99315-1	4.71265-3	2.3567-3	2.0031696-1	1.000-8	4.003-5
200.0	100.0	0.050	2.6111-5	1.00066	2 -7.7731-3	4.98161-1	1.17593-2	5.8843-3	5.0066670-1	0.000	9.988-5
200.0	100.0	0.100	5.4460-5	1.00132	2 -1.5611-2	9.96004-1	2.34411-2	1.1739-2	1.0010201	0.000	1.990-4
200.0	100.0	0.200	1.3096-4	1.00265	2 -3.1473-2	1.99060	4.65767-2	2.3390-2	2.0006599	1.000-7	3.954-4
200.0	100.0	0.305	2.1799-4	1.00405	2 -4.8448-2	3.03360	7.04669-2	3.5487-2	3.0489693	1.000-7	5.989-4
200.0	100.0	0.500	4.4603-4	1.00664	2 -8.0551-2	4.96650	1.14180-1	5.7643-2	4.9918055	2.000-7	9.696-4
200.0	100.0	0.700	7.3211-4	1.00931	2 -1.1447-1	6.94385	1.57788-1	7.9965-2	6.9794240	4.000-7	1.340-3
200.0	100.0	1.000	1.3102-3	1.01331	2 -1.6707-1	9.89973	2.21083-1	1.1270-1	9.9508805	-1.000-7	1.877-3
200.0	100.0	1.524	2.7062-3	1.02032	2 -2.6366-1	1.50342	3.25815-1	1.6763-1	1.5113077	-1.000-6	2.765-3
200.0	100.0	2.000	4.4210-3	1.02669	2 -3.5624-1	1.96673	4.14890-1	2.1540-1	1.9771840	1.000	3.523-3
200.0	100.0	3.048	9.7661-3	1.04075	2 -5.7467-1	2.97653	5.92401-1	3.1329-1	2.9928077	1.000	5.031-3
200.0	100.0	5.000	2.5942-2	1.05696	2 -1.0258	4.82073	8.64334-1	4.7216-1	4.8484658	1.000-6	7.351-3
200.0	100.0	7.000	5.1156-2	1.09370	2 -1.5330	6.66313	1.07950	6.1132-1	6.7034140	1.000-6	9.186-3
200.0	100.0	10.000	1.0619-1	1.13339	2 -2.3500	9.34260	1.31310	7.8056-1	9.4031670	1.000-5	1.119-2
200.0	100.0	20.000	4.3517-1	1.25998	2 -5.2478	1.76411	1.66909	1.1271	1.7701090	2.000-5	1.432-2
200.0	100.0	30.480	9.9087-1	1.38218	2 -8.2277	2.54966	1.76930	1.3101	2.5736922	2.000-5	1.530-2
200.0	100.0	50.000	2.4654	1.58538	2 -1.3283	3.84731	2.1.80194	1.4714	3.8940188	2.000-5	1.569-2
200.0	100.0	70.000	4.4115	1.76889	2 -1.7868	5.01757	1.80486	1.5496	5.0920890	2.000-5	1.574-2
200.0	100.0	90.000	6.6822	1.93427	2 -2.2003	6.07210	1.80510	1.5945	6.1784045	2.000-5	1.574-2
200.0	100.0	110.000	9.2063	2.08584	2 -2.5792	7.03849	1.80512	1.6238	7.1801035	2.000-5	1.570-2
200.0	100.0	225.000	2.6951	1.2.79181	2 -4.3441	1.15398	1.80513	1.6961	1.1939584	3.000-4	1.570-2
200.0	100.0	350.000	5.0187	1.3.38010	2 -5.8148	1.52907	1.80513	1.7240	1.6053422	3.000	1.570-2
200.0	100.0	475.000	7.6168	1.3.86581	2 -7.0291	1.83876	1.80513	1.7386	1.9579252	3.000	1.570-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	200.0	0.010	1.3658-5	2.00006	2	-7.6507-4	4.92869-2	1.16742-3	5.8375-4	5.0291240-2	1.005-5
200.0	200.0	0.020	1.4088-5	2.00013	2	-1.5346-3	4.986376-2	2.33283-3	1.1650-3	1.0064505-1	2.012-5
200.0	200.0	0.050	2.6438-5	2.00032	2	-3.8480-3	2.46626-1	5.82193-3	2.9148-3	2.5164443-1	5.019-5
200.0	200.0	0.100	5.8060-5	2.00065	2	-7.7291-3	4.93188-1	1.16083-2	5.8127-3	5.0322830-1	1.000-4
200.0	200.0	0.200	1.1103-4	2.00131	2	-1.5593-2	2.30768-2	1.1591-2	1.5151-2	1.00263391	1.989-4
200.0	200.0	0.305	1.4175-4	2.00200	2	-2.4021-2	1.50392	3.49463-2	1.7594-2	1.5345731	3.015-4
200.0	200.0	0.500	2.7839-4	2.00329	2	-3.9974-2	2.46447	5.66550-2	2.8604-2	2.5147799	4.884-4
200.0	200.0	0.700	4.2966-4	2.00462	2	-5.6864-2	3.44900	7.833684-2	3.9717-2	3.5195075	1.000-7
200.0	200.0	1.000	6.9090-4	2.00662	2	-8.3121-2	4.92448	1.09963-1	5.6060-2	5.0253745	3.000-7
200.0	200.0	1.524	1.2690-3	2.01013	2	-1.3152-1	7.49780	1.62453-1	8.3584-2	7.6519980	9.481-4
200.0	200.0	2.000	1.8821-3	2.01334	2	-1.7816-1	9.893137	2.07315-1	1.0763-1	1.0034257	1.401-3
200.0	200.0	3.048	3.7513-3	2.02048	2	-2.8898-1	1.49546	2.97377-1	1.5726-1	1.5265627	1.000-7
200.0	200.0	5.000	9.0064-3	2.03396	2	-5.2115-1	2.44453	3.37320-1	2.3887-1	2.4960796	2.565-3
200.0	200.0	7.000	1.7028-2	2.04797	2	-7.8695-1	3.40989	5.50034-1	3.1152-1	3.4828367	3.777-3
200.0	200.0	10.000	3.4461-2	2.06923	2	-1.2244	4.84467	6.75061-1	4.0148-1	4.9505105	4.751-3
200.0	200.0	20.000	1.4423-1	2.14047	2	-2.8561	9.51454	8.74372-1	5.9191-1	9.7369840	5.833-3
200.0	200.0	30.480	3.4584-1	2.21388	2	-4.6461	1.42331	9.34568-1	6.9587-1	1.4588756	7.610-3
200.0	200.0	50.000	9.4177-1	2.34482	2	-7.9037	2.25952	9.55600-1	7.8856-1	2.3227021	8.200-3
200.0	200.0	70.000	1.8159	2.47133	2	-1.1065	3.06634	9.57700-1	8.3320-1	3.1613044	1.000-5
200.0	200.0	90.000	2.9219	2.59109	2	-1.4059	3.82993	9.57775-1	8.5831-1	3.9599243	9.480-3
200.0	200.0	110.000	4.2320	2.70498	2	-1.6906	4.55607	9.57792-1	8.7440-1	4.7240860	8.510-3
200.0	200.0	225.000	1.4829	3.27498	2	-3.1156	8.19046	9.57793-1	9.1212-1	8.6265865	5.000-5
200.0	200.0	350.000	3.0637	3.78409	2	-4.3884	1.14365	9.57793-1	9.2561-1	1.2241565	8.500-3
200.0	200.0	475.000	4.9663	4.21933	2	-5.4765	1.42117	9.57793-1	9.3229-1	1.5449417	8.500-3
200.0	400.0	0.010	-2.3464-5	4.00003	2	-3.7026-4	2.37189-2	5.59733-4	2.8258-4	2.5740818-2	5.146-6
200.0	400.0	0.020	6.8710-6	4.00006	2	-7.3648-4	4.73103-2	1.11851-3	5.6171-4	5.1364190-2	1.029-5
200.0	400.0	0.050	7.0401-5	4.00015	2	-1.8409-3	1.18148-1	2.79152-3	1.3931-3	1.2829328-1	2.561-5
200.0	400.0	0.100	3.8400-6	4.00031	2	-3.7111-3	2.36615-1	5.56638-3	2.7874-3	2.5668104-1	5.113-5
200.0	400.0	0.200	1.3350-4	4.00063	2	-7.4754-3	4.72912-1	1.10670-2	5.95606-3	5.1347185-1	1.015-4
200.0	400.0	0.305	1.0641-4	4.00096	2	-1.5123-2	7.21387-1	1.67615-2	8.4392-3	7.6323065-1	1.539-4
200.0	400.0	0.500	2.8028-4	4.00158	2	-1.9174-2	1.18224	2.71803-2	1.3722-2	1.2836759	2.494-4
200.0	400.0	0.700	3.2454-4	4.00221	2	-2.7290-2	1.65516	3.76065-2	1.9061-2	1.7971819	2.494-4
200.0	400.0	1.000	5.2630-4	4.00317	2	-3.9905-2	2.36405	5.27870-2	2.6915-2	2.5670260	3.452-4
200.0	400.0	1.524	8.8670-4	4.00486	2	-6.3188-2	3.60177	7.80336-2	4.0149-2	3.9113237	4.846-4
200.0	400.0	2.000	1.2396-3	4.00641	2	-8.3564-2	4.72555	9.96388-2	5.1727-2	5.1320445	7.166-4
200.0	400.0	3.048	2.1868-3	4.00985	2	-1.3911-1	7.19768	1.43096-1	7.5676-2	7.8180365	9.139-4
200.0	400.0	5.000	4.4463-3	4.01639	2	-2.5158-1	1.17949	2.10882-1	1.1518-1	1.2815223	1.938-3
200.0	400.0	7.000	7.7002-3	4.02321	2	-3.8099-1	1.64948	2.65754-1	1.4502-1	1.7927001	2.442-3
200.0	400.0	10.000	1.4169-2	4.03362	2	-5.9539-1	2.35253	3.27009-1	1.9451-1	2.5579440	3.009-3
200.0	400.0	20.000	5.2257-2	4.06912	2	-1.4084	4.67885	4.26121-1	2.8868-1	5.0951225	3.945-3
200.0	400.0	30.480	1.2114-1	4.10660	2	-2.3225	7.08858	1.456862-1	3.4079-1	7.7316280	4.268-3
200.0	400.0	50.000	3.2960-1	4.17571	2	-4.0417	1.15017	4.67964-1	3.8768-1	1.2582728	4.400-3
200.0	400.0	70.000	6.4872-1	4.24509	2	-5.77754	1.59262	4.69054-1	4.1035-1	1.7476143	4.430-3
200.0	400.0	90.000	1.0708	4.31301	2	-7.4734	2.02569	4.69154-1	4.2305-1	2.2295777	4.450-3
200.0	400.0	110.000	1.5918	4.37953	2	-9.1365	2.44985	4.69163-1	4.3115-1	2.7045524	4.450-3
200.0	400.0	225.000	6.3453	4.73792	2	-1.6806	4.69164-1	4.69164-1	4.4982-1	5.3163065	4.410-3
200.0	400.0	350.000	1.4495	5.08846	2	-2.6859	1.697004	4.69164-1	4.5625-1	7.9653850	4.450-3
200.0	400.0	475.000	2.5310	5.40652	2	-3.4481	1.899799	4.69164-1	4.5933-1	1.0460098	4.400-3

SURFACE N	α O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
200.0	900.0	0.010	-3.8774-5	9.00001 2	-1.2470-4	7.97007-3	1.87795-4	8.4327-5	1.2787582-2	0.000	2.556-6
200.0	900.0	0.020	-7.7581-5	9.00002 2	-2.4972-4	1.59401-2	3.75273-4	1.7896-4	2.5575172-2	0.000	5.110-6
200.0	900.0	0.050	2.0737-4	9.00005 2	-6.1340-4	3.59315-2	9.36595-4	4.5605-4	6.3739775-2	3.260-7	1.304-5
200.0	900.0	0.100	3.3368-4	9.00010 2	-1.2348-3	7.91269-2	1.86762-3	9.2775-4	1.2751930-1	3.300-7	2.569-5
200.0	900.0	0.200	1.0206-4	9.00021 2	-2.5091-3	1.58700-1	3.71332-3	1.8611-3	2.5531656-1	5.800-7	5.106-5
200.0	900.0	0.305	-1.9267-4	9.00032 2	-3.8758-3	2.42290-1	5.62419-3	2.8292-3	3.8952849-1	7.000-7	7.724-5
200.0	900.0	0.500	2.7211-4	9.00053 2	-6.4342-3	3.96718-1	9.12071-3	4.6019-3	6.3827740-1	8.500-7	1.248-4
200.0	900.0	0.700	2.6293-4	9.00074 2	-9.1598-3	5.55482-1	1.26201-2	6.3886-3	8.9364130-1	8.900-7	1.724-4
200.0	900.0	1.000	4.6700-4	9.00106 2	-1.3393-2	7.93437-1	1.77162-2	9.0288-3	1.2765742	8.000-7	2.416-4
200.0	900.0	1.524	5.6050-4	9.00163 2	-2.1218-2	1.20922	2.61938-2	1.3474-2	1.9455435	9.000-7	3.569-4
200.0	900.0	2.000	7.0500-4	9.00215 2	-2.8766-2	1.58681	3.34611-2	1.7364-2	2.5531860	9.000-7	4.556-4
200.0	900.0	3.048	1.5280-3	9.00331 2	-4.6733-2	2.41754	4.80562-2	2.5410-2	3.8907117	9.000-7	6.545-4
200.0	900.0	5.000	3.1021-3	9.00550 2	-8.4568-2	3.96412	7.08616-2	3.8698-2	6.3817410	9.000-7	9.658-4
200.0	900.0	7.000	5.5432-3	9.00780 2	-1.2814-1	5.54711	8.93476-2	5.0605-2	8.9333210	9.000-7	1.218-3
200.0	900.0	10.000	8.9460-3	9.01132 2	-2.0051-1	7.91996	1.10020-1	6.5441-2	1.2760258 1	1.000-6	1.500-3
200.0	900.0	20.000	2.6160-2	9.02335 2	-4.7624-1	1.58090 1	1.43613-1	9.7313-2	2.5508986 1	1.000-6	1.970-3
200.0	900.0	30.480	5.5317-2	9.03616 2	-7.8854-1	2.40419 1	1.54116-1	1.1502-1	3.8856261 1	1.000-6	2.134-3
200.0	900.0	50.000	1.3899-1	9.06003 2	-1.3823	3.92833 1	1.57950-1	1.3101-1	6.3681080 1	0.000	2.203-3
200.0	900.0	70.000	2.6456-1	9.08432 2	-1.9893	5.47747 1	1.58331-1	1.3875-1	8.9068495 1	2.000-6	2.211-3
200.0	900.0	90.000	4.3073-1	9.10842 2	-2.5918	7.01412 1	1.58366-1	1.4305-1	1.1440798 2	0.000	2.210-3
200.0	900.0	110.000	6.3708-1	9.13233 2	-3.1894	8.53844 1	1.58370-1	1.4586-1	1.3970030 2	0.000	2.210-3
200.0	900.0	225.000	2.5927	9.26617 2	-6.5355	1.70723 2	1.58370-1	1.5222-1	2.8425023 2	0.000	2.220-3
200.0	900.0	350.000	6.1744	9.40503 2	-1.0007 1	2.59261 2	1.58370-1	1.5439-1	4.3976849 2	0.000	2.200-3
200.0	900.0	475.000	1.1226 1	9.53750 2	-1.3318 1	3.43728 2	1.58370-1	1.5542-1	5.9375510 2	-2.000-5	2.180-3

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	0.0	0.010	5.8770-4	1.58096	-9.2558-2	1.26505	1	4.03576-1	1.2650526	1	3.198-3
252.9	0.0	0.020	1.1758-3	2.23594	-1.3105-1	1.78903	1	5.70579-1	1.7890367	1	4.523-3
252.9	0.0	0.050	2.9456-3	3.53620	-2.0828-1	2.82852	1	9.01017-1	2.8285360	1	7.143-3
252.9	0.0	0.100	5.9175-3	5.00294	-2.9723-1	3.99956	1	1.27133	3.9996035	1	1.008-2
252.9	0.0	0.200	1.1915-2	7.08080	-4.2736-1	5.65501	1	1.79044	5.6551180	1	1.420-2
252.9	0.0	0.305	1.8337-2	8.75200	-5.3805-1	6.98135	1	2.19993	6.9815555	1	1.746-2
252.9	0.0	0.500	3.0554-2	1.12216	-7.1040-1	8.93394	1	2.79335	8.9343610	1	3.000-5
252.9	0.0	0.700	4.3465-2	1.32976	-8.6719-1	1.05651	2	3.27630	1.0565840	2	2.217-2
252.9	0.0	1.000	6.3533-2	1.59288	-1.0831	1.26178	2	3.87638	1.2619072	2	4.000-5
252.9	0.0	1.524	1.0067-1	1.97369	-1.4350	1.55554	2	4.66554	1.5557691	2	3.071-2
252.9	0.0	2.000	1.3646-1	2.26825	-1.7412	1.77987	2	5.23915	1.7802104	2	4.173-2
252.9	0.0	3.048	2.2209-1	2.81854	-2.3398	2.91169	2	6.19654	2.9123192	2	2.000-4
252.9	0.0	5.000	4.0410-1	3.64841	-3.6019	2.79478	2	7.35877	2.7961010	2	4.947-2
252.9	0.0	7.000	6.1485-1	4.35620	-4.8075	3.29389	2	8.11066	3.2960838	2	5.902-2
252.9	0.0	10.000	9.7086-1	5.26409	-6.5618	3.91644	2	8.79790	3.9201712	2	6.530-2
252.9	0.0	20.000	2.4024	7.61198	-1.1817	5.46527	2	9.61613	5.4758190	2	7.119-2
252.9	0.0	30.480	4.1519	9.50348	-1.6416	6.88205	2	9.78929	6.7018780	2	7.881-2
252.9	0.0	50.000	7.7745	1.22813	-2.3327	8.45571	2	9.83440	8.4973165	2	8.095-2
252.9	0.0	70.000	1.1770	1.45812	-2.9074	9.92195	2	9.83760	9.907645	2	8.210-2
252.9	0.0	90.000	1.5948	1.65553	-3.4010	1.11803	3	9.83781	9.907645	2	8.249-2
252.9	0.0	110.000	2.0260	1.83093	-3.8394	1.122984	3	9.83783	1.2403667	3	8.270-2
252.9	0.0	225.000	4.6726	2.60927	-5.7853	1.72600	3	9.83783	1.7652421	3	8.280-2
252.9	0.0	350.000	7.7687	3.23301	-7.3447	2.12361	3	9.83783	1.7652421	3	8.330-2
252.9	0.0	475.000	1.1038	3.73961	-8.6111	2.44654	3	9.83783	2.190916	3	8.340-2
252.9	0.5	0.010	3.1649-4	1.65814	-6.7804-2	9.26721	1	2.95642-1	9.2672260	1	8.340-2
252.9	0.5	0.020	7.5636-4	2.29117	-1.0500-1	1.43313	1	4.57047-1	1.4331396	1	2.343-3
252.9	0.5	0.050	2.2264-3	3.57137	-1.8105-1	2.45659	1	7.82388-1	2.4566098	1	3.623-3
252.9	0.5	0.100	4.8574-3	5.02786	-2.6937-1	3.61945	1	1.15012	3.6194939	1	6.199-3
252.9	0.5	0.200	1.0370-2	7.09843	-3.9905-1	5.26909	1	1.66740	5.2691965	1	8.000-6
252.9	0.5	0.305	1.6404-2	8.76628	-5.0952-1	6.59276	1	2.07606	6.5929665	1	1.322-2
252.9	0.5	0.500	2.8047-2	1.12328	-6.8165-1	8.54287	1	2.66873	8.5432920	1	1.500-5
252.9	0.5	0.700	4.0477-2	1.33070	-8.3831-1	1.01727	2	3.15127	1.0173405	2	2.118-2
252.9	0.5	1.000	5.9940-2	1.59366	-1.0541	1.22242	2	3.74001	1.2225426	2	4.000-5
252.9	0.5	1.524	9.6207-2	1.97432	-1.4059	1.51606	2	4.53985	1.5162878	2	7.000-5
252.9	0.5	2.000	1.3133-1	2.26880	-1.7120	1.74033	2	5.11330	1.7406667	2	8.610-2
252.9	0.5	3.048	2.1574-1	2.81898	-2.3695	2.15206	2	6.07050	2.1526949	2	1.800-4
252.9	0.5	5.000	3.9595-1	3.64875	-3.5724	2.75508	2	7.23259	2.7564034	2	4.847-2
252.9	0.5	7.000	6.0520-1	4.35649	-4.7779	3.25416	2	7.98442	3.2563469	2	6.200-4
252.9	0.5	10.000	9.5934-1	5.26432	-6.5321	3.87667	2	8.67162	3.8804006	2	9.000-4
252.9	0.5	20.000	2.3862	7.61215	-1.1788	5.42545	2	9.48983	5.4360000	2	1.290-3
252.9	0.5	30.480	4.1320	9.50361	-1.6386	6.64221	2	9.66299	6.6620380	2	2.200-3
252.9	0.5	50.000	7.7491	1.22814	-2.3297	8.41585	2	9.70810	8.4574590	2	2.680-3
252.9	0.5	70.000	1.1740	1.45812	-2.9044	9.88208	2	9.71129	9.9508965	2	3.250-3
252.9	0.5	90.000	1.5914	1.65554	-3.3979	1.11405	3	9.71151	1.1240693	3	3.800-3
252.9	0.5	110.000	2.0222	1.83093	-3.8364	1.122585	3	9.71152	1.2393768	3	8.150-2
252.9	0.5	225.000	4.6672	2.60928	-5.7823	1.72201	3	9.71152	1.7612528	3	8.160-2
252.9	0.5	350.000	7.7620	3.23302	-7.3416	2.11962	3	9.71152	1.7612528	3	8.210-2
252.9	0.5	475.000	1.1031	3.73961	-8.6081	2.44255	3	9.71152	2.1951017	3	8.8541
252.9	0.5								2.5608961	3	8.9766

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	1.0	0.010	1.7992-4	1.87067	-5.0974-2	6.96698	2.22260-1	1.1113-1	6.9669945	0.000	1.761-3
252.9	1.0	0.020	4.9696-4	2.44938	-8.4985-2	1.15965	3.69813-1	1.8494-1	1.1596563	0.000	2.930-3
252.9	1.0	0.050	1.6925-3	3.67487	-1.5778-1	2.13937	6.81248-1	3.4094-1	2.1393885	1.000-6	5.401-3
252.9	1.0	0.100	3.9953-3	5.10190	-2.4431-1	3.27871	1.04154	7.8011-1	3.2787498	2.000-6	8.258-3
252.9	1.0	0.200	9.0323-3	7.15106	-3.7266-1	4.91128	1.55346	7.8011-1	4.9113901	5.000-6	1.231-2
252.9	1.0	0.305	1.4678-2	8.80895	-4.8247-1	6.22705	1.95968	9.8653-1	6.2272545	1.200-5	1.554-2
252.9	1.0	0.500	2.5745-2	1.12661	1 -6.5395-1	8.16977	2.55010	1.2884	8.1701950	2.200-5	2.023-2
252.9	1.0	0.700	3.7691-2	1.33352	1 -8.1022-1	9.79554	3.03144	1.5378	9.7962335	3.600-5	2.406-2
252.9	1.0	1.000	5.6541-2	1.59601	1 -1.0256	1.18434	3.36194	1.8472	1.1844635	7.000-5	2.875-2
252.9	1.0	1.524	9.1924-2	1.97622	1 -1.3770	1.47763	4.41802	2.2784	1.4778596	1.200-4	3.513-2
252.9	1.0	2.000	1.2637-1	2.27405	1 -1.6828	1.70171	4.99099	2.5980	1.7020508	1.800-4	3.974-2
252.9	1.0	3.048	2.0952-1	2.82031	1 -2.3400	2.1320	5.94763	3.1576	2.1138377	3.200-4	4.748-2
252.9	1.0	5.000	3.8786-1	3.64978	1 -3.5424	2.71600	7.10931	3.9062	2.7173267	5.800-4	5.699-2
252.9	1.0	7.000	5.9556-1	4.35735	1 -4.7476	3.21496	7.86095	4.4640	3.2171523	8.500-4	6.323-2
252.9	1.0	10.000	9.4774-1	5.26503	1 -6.5015	3.83737	8.54804	5.0738	3.8411043	1.210-3	6.904-2
252.9	1.0	20.000	2.3697	7.61264	1 -1.1756	5.38601	2.93617	6.2102	5.3965585	2.090-3	7.667-2
252.9	1.0	30.480	4.1115	9.50400	1 -1.6355	6.50270	9.53932	6.8105	6.6225335	2.4620-3	7.878-2
252.9	1.0	50.000	7.7229	1.22817	2 -2.3266	8.37629	9.58443	7.3973	8.4178970	3.140-3	7.983-2
252.9	1.0	70.000	1.1709	1.45815	2 -2.9013	9.84248	9.58762	7.7271	9.9113040	3.430-3	8.014-2
252.9	1.0	90.000	1.5879	1.65556	2 -3.3948	1.11008	9.58783	7.9414	1.1201081	3.4600-3	8.030-2
252.9	1.0	110.000	2.0183	1.83095	2 -3.8333	1.122189	9.58785	8.0950	1.2354142	3.700-3	8.040-2
252.9	1.0	225.000	4.6616	2.60929	2 -5.7791	1.171805	9.58785	8.5384	1.7572863	4.100-3	8.070-2
252.9	1.0	350.000	7.7549	3.23303	2 -7.3384	2.11565	9.58785	8.7461	2.1911332	4.400-3	8.110-2
252.9	1.0	475.000	1.1022	3.73962	2 -8.6049	2.43858	9.58785	8.8666	2.5569268	4.300-3	8.100-2
252.9	2.0	0.010	7.3073-5	2.54939	-3.2164-2	4.39617	1.40246-1	7.0123-2	4.3961901	0.000	1.111-3
252.9	2.0	0.020	2.3907-4	2.99991	-5.8641-2	8.00020	2.55114-1	1.2758-1	8.0002455	0.000	2.022-3
252.9	2.0	0.050	1.0120-3	4.06259	-1.2177-1	1.64958	5.25168-1	2.6283-1	1.6495956	1.000	4.162-3
252.9	2.0	0.100	2.7379-3	5.38789	-2.0213-1	2.70769	8.59780-1	4.3071-1	2.7077357	0.000	6.813-3
252.9	2.0	0.200	6.8813-3	7.35783	-3.2555-1	4.27712	1.35186	6.7893-1	4.2772322	3.000-6	1.071-2
252.9	2.0	0.305	1.1776-2	8.97761	-4.3284-1	5.56265	1.74874	8.8040-1	5.5628530	9.000-6	1.387-2
252.9	2.0	0.500	2.1707-2	1.13985	1 -6.0179-1	7.37666	2.33043	1.1774	7.4770845	1.600-5	1.848-2
252.9	2.0	0.700	3.2684-2	1.34472	1 -7.5652-1	9.08643	2.30703	1.4240	9.0871305	2.800-5	2.227-2
252.9	2.0	1.000	5.0295-2	1.60538	1 -9.7049-1	1.11200	3.39063	1.7306	1.1121247	6.000-5	2.693-2
252.9	2.0	1.524	8.3876-2	1.98380	1 -1.3201	1.40391	4.18574	2.1586	1.4041357	2.100-4	3.328-2
252.9	2.0	2.000	1.1692-1	2.27704	1 -1.6250	1.62724	4.75680	2.7761	1.6275815	2.1600-4	3.785-2
252.9	2.0	3.048	1.9747-1	2.82562	1 -2.2806	2.03777	5.71121	3.0322	2.0384077	3.000-4	4.557-2
252.9	2.0	5.000	3.7193-1	3.65388	1 -3.4813	2.63970	6.87119	3.7758	2.6410200	5.400-4	5.505-2
252.9	2.0	7.000	5.7634-1	4.36079	1 -4.6853	3.13818	7.62213	4.3296	3.1403752	8.000-4	6.128-2
252.9	2.0	10.000	9.2437-1	5.26788	1 -6.4381	3.76018	8.30876	4.9341	3.7639202	1.140-3	6.708-2
252.9	2.0	20.000	2.3358	7.61460	1 -1.1691	5.30824	9.12656	6.0575	5.3187940	2.1950-3	7.460-2
252.9	2.0	30.480	4.0691	9.50557	1 -1.6289	6.52468	9.29968	6.6485	6.5445165	2.2480-3	7.670-2
252.9	2.0	50.000	7.6680	1.22830	2 -2.3198	8.29804	9.34478	7.2241	8.3396515	2.2950-3	7.776-2
252.9	2.0	70.000	1.1643	1.45825	2 -2.8945	9.76411	9.34797	7.5464	9.8329345	3.280-3	7.811-2
252.9	2.0	90.000	1.5804	1.65565	2 -3.3880	1.10224	9.34819	7.7553	1.1122634	3.3400-3	7.810-2
252.9	2.0	110.000	2.0101	1.83104	2 -3.8264	1.121404	9.34821	7.9049	1.2275638	3.500-3	7.830-2
252.9	2.0	225.000	4.6496	2.60935	2 -5.7722	1.171018	9.34821	8.3354	1.7494201	3.900-3	7.860-2
252.9	2.0	350.000	7.7397	3.23307	2 -7.3315	2.10777	9.34821	8.5367	2.1832597	4.100-3	7.900-2
252.9	2.0	475.000	1.1004	3.73966	2 -8.6598	2.43070	9.34821	8.6531	2.5490493	4.000-3	7.870-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	4.0	0.010	2.3624-5	4.30109	-1.7627-2	2.40930	7.68615-2	3.8430-2	2.4093275	0.000	6.091-4
252.9	4.0	0.020	8.4302-5	4.58251	-3.4167-2	4.66062	1.48615-1	7.4325-2	4.6606732	1.000-7	1.178-3
252.9	4.0	0.050	4.3374-4	5.33897	-7.9112-2	1.07080	3.40842-1	1.7058-1	1.0708221	0.000	2.701-3
252.9	4.0	0.100	1.3948-3	6.40541	-1.4377-1	1.92225	6.10101-1	3.0561-1	1.9222925	0.000	4.835-3
252.9	4.0	0.200	4.1256-3	8.13249	-2.5205-1	3.29813	1.04142	5.2310-1	3.2982433	1.000-6	8.253-3
252.9	4.0	0.305	7.7120-3	9.62274	-3.5077-1	4.48085	1.40654	7.0820-1	4.4810546	1.000-6	1.115-2
252.9	4.0	0.500	1.5543-2	1.19132	-5.1065-1	6.29175	1.95688	9.8870-1	6.2921745	1.300-5	1.552-2
252.9	4.0	0.700	2.4659-2	1.38862	-6.5966-1	7.84200	2.41585	1.2255	7.8426995	2.400-5	1.917-2
252.9	4.0	1.000	3.9830-2	2.01331	-8.6793-1	9.82137	2.98385	1.5230	9.8225540	3.500-5	2.368-2
252.9	4.0	1.524	6.9767-2	2.01381	-1.2112	1.26869	3.76440	1.9413	1.2689189	7.000-5	2.990-2
252.9	4.0	2.000	9.9944-2	2.30324	-1.5120	1.48912	4.32802	2.2530	1.4894559	2.100-4	3.441-2
252.9	4.0	3.048	1.7503-1	2.84677	-2.1617	1.89587	5.27365	2.8001	1.8965062	2.200-4	4.202-2
252.9	4.0	5.000	3.4115-1	3.67026	-3.3554	2.49433	6.42694	3.5324	2.4956498	4.300-4	5.142-2
252.9	4.0	7.000	5.3842-1	4.37452	-4.5550	2.99095	7.17505	4.0776	2.9931368	6.600-4	5.759-2
252.9	4.0	10.000	8.7730-1	5.27925	-6.3032	3.61133	7.85988	4.6717	3.6150616	9.700-4	6.337-2
252.9	4.0	20.000	2.2650	7.62246	-1.1548	5.15707	8.67640	5.7700	5.1676185	1.690-3	7.078-2
252.9	4.0	30.480	3.9792	9.51187	-1.6142	6.37250	8.84937	6.3434	6.3923320	2.140-3	7.284-2
252.9	4.0	50.000	7.5494	1.22878	-2.3048	8.14494	8.89445	6.8976	8.1865525	2.570-3	7.379-2
252.9	4.0	70.000	1.1501	1.45866	-2.8793	9.61052	8.89764	7.2058	9.6793425	2.850-3	7.409-2
252.9	4.0	90.000	1.5641	1.65601	-3.3726	1.08685	8.89786	7.4047	1.0968727	3.3000-3	7.430-2
252.9	4.0	110.000	1.9918	1.83136	-3.8110	1.19863	8.89787	7.5467	1.2121507	3.3200-3	7.450-2
252.9	4.0	225.000	4.6227	2.60957	-5.7566	1.69470	8.89787	7.9533	1.7339437	3.3600-3	7.490-2
252.9	4.0	350.000	7.7056	3.23325	-7.3158	2.09227	8.89787	8.1423	2.1677544	3.3700-3	7.500-2
252.9	4.0	475.000	1.0964	3.73981	-8.5821	2.41518	8.89787	8.2514	2.5335270	3.3700-3	7.490-2
252.9	8.0	0.010	7.9740-6	8.15471	-9.0580-3	1.23800	3.94946-2	1.9747-2	1.2380451	0.000	3.130-4
252.9	8.0	0.020	2.6810-5	8.30658	-1.7983-2	2.45294	7.82172-2	3.9117-2	2.4530278	0.000	6.199-4
252.9	8.0	0.050	1.4321-4	8.74668	-4.4133-2	5.97123	1.90049-1	9.45114-2	5.9714660	0.000	1.506-3
252.9	8.0	0.100	5.1295-4	9.43551	-8.5900-2	1.14708	3.63971-1	1.8231-1	1.1471414	1.000-6	2.885-3
252.9	8.0	0.200	1.7719-3	1.06834	-1.6423-1	2.14120	6.75514-1	3.3937-1	2.1413292	1.000-6	5.354-3
252.9	8.0	0.305	3.6876-3	1.18573	-2.4200-1	3.07279	9.63098-1	4.8497-1	3.0730161	1.000-6	7.639-3
252.9	8.0	0.500	8.4274-3	1.37812	-3.7634-1	4.59385	1.442529	7.2009-1	4.5942998	1.000-6	1.130-2
252.9	8.0	0.700	1.4506-2	1.55185	-5.0757-1	5.95887	1.82940	9.2804-1	5.9595885	1.000-5	1.450-2
252.9	8.0	1.000	2.5400-2	1.78247	-6.9693-1	7.875808	2.34567	1.1973	7.7592890	1.600-5	1.861-2
252.9	8.0	1.524	4.8507-2	2.12964	-1.0177	1.04361	3.07512	1.5857	1.0438373	2.400-5	2.441-2
252.9	8.0	2.000	7.3030-2	2.40517	-1.3041	1.25345	3.61167	1.8801	1.2537862	6.000-5	2.888-2
252.9	8.0	3.048	1.3691-1	2.92984	-1.9312	1.64609	4.52447	2.4024	1.6467239	1.400-4	3.601-2
252.9	8.0	5.000	2.8508-1	3.73505	-3.0985	2.23126	5.65216	3.1073	2.2325811	2.3000-4	4.515-2
252.9	8.0	7.000	4.6646-1	4.42901	-4.2805	2.72061	6.38926	3.6338	2.7228002	4.700-4	5.117-2
252.9	8.0	10.000	7.8444-1	5.32447	-6.0109	3.33463	7.06703	4.2069	3.3383691	7.200-4	5.684-2
252.9	8.0	20.000	2.1165	7.65382	-1.1225	4.87121	7.87846	5.2580	4.8817632	1.330-3	6.411-2
252.9	8.0	30.480	3.7846	9.53699	-1.5804	6.08263	8.05086	5.7994	6.1024640	1.680-3	6.600-2
252.9	8.0	50.000	7.2855	1.23072	-2.2696	7.85143	8.09585	6.3153	7.8930420	2.040-3	6.692-2
252.9	8.0	70.000	1.1178	1.46029	-2.8433	9.31504	8.09904	6.5985	9.3838625	2.240-3	6.718-2
252.9	8.0	90.000	1.5267	1.65744	-3.3361	1.051504	8.09925	6.7796	1.0571988	2.400-3	6.730-2
252.9	8.0	110.000	1.9498	1.83265	-3.7742	1.16886	8.09927	6.9082	1.1823876	2.500-3	6.740-2
252.9	8.0	225.000	4.5596	2.61047	-5.7187	1.66469	8.09927	7.2727	1.7039228	2.700-3	6.760-2
252.9	8.0	350.000	7.6247	3.23397	-7.2774	2.06214	8.09927	7.4404	2.1376222	2.800-3	6.780-2
252.9	8.0	475.000	1.0868	3.74042	-8.5436	2.38498	8.09927	7.5366	2.5033282	2.700-3	6.750-2

SURFACE N	α _Q	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	15.0	0.010	3.9100-6	1.50830	1 -4.8641-3	6.64781-1	2.12076-2	1.0603-2	6.6485725-1	0.000	1.681-4
252.9	15.0	0.020	1.1260-5	1.51657	1 -9.7207-3	1.32590	4.22792-2	2.1144-2	1.3260570	0.000	1.350-4
252.9	15.0	0.050	5.1772-5	1.54111	1 -2.4305-2	3.28801	1.04645-1	5.2371-2	3.2884057	0.000	8.293-4
252.9	15.0	0.100	1.8083-4	1.58122	1 -4.8624-2	6.49042	2.05920-1	1.0314-1	6.4912490	0.000	1.632-3
252.9	15.0	0.200	6.5224-4	1.65871	1 -9.7303-2	1.26629	3.99317-1	2.0064-1	1.2664683	1	3.164-3
252.9	15.0	0.305	1.4386-3	1.73664	1 -1.4894-1	1.88470	5.90212-1	2.9721-1	1.8849970	1	4.679-3
252.9	15.0	0.500	3.6068-3	1.87327	1 -2.4439-1	2.96491	5.18404-1	4.6397-1	2.9654468	1	7.278-3
252.9	15.0	0.700	6.6880-3	2.00453	1 -3.4355-1	3.99621	1.22370	6.2074-1	3.9970404	1	9.599-3
252.9	15.0	1.000	1.2748-2	2.18794	1 -4.9419-1	5.42702	1.63420	8.3415-1	5.4283600	1	1.296-2
252.9	15.0	1.524	2.7010-2	2.47894	1 -7.6315-1	7.67182	2.24562	1.1578	7.6742075	1	1.781-2
252.9	15.0	2.000	4.3424-2	2.71929	1 -1.0129	9.50229	2.71367	1.4125	9.5057995	1	2.900-5
252.9	15.0	3.048	8.9704-2	3.19273	1 -1.5788	1.30452	3.53729	1.8782	1.3051742	2	2.154-2
252.9	15.0	5.000	2.0672-1	3.94460	1 -2.6687	1.85093	4.59028	2.5237	1.8522675	2	2.811-2
252.9	15.0	7.000	3.5858-1	4.60707	1 -3.7973	2.31806	5.29375	3.0137	2.3202690	2	3.659-2
252.9	15.0	10.000	6.3585-1	5.47344	1 -5.4715	2.91212	5.94934	3.5490	2.9158750	2	4.229-2
252.9	15.0	20.000	1.8534	7.75809	1 -1.0586	4.41917	6.74440	4.5249	4.4297283	2	4.768-2
252.9	15.0	30.480	3.4233	9.62077	1 -1.5115	5.61741	6.91493	5.0186	5.6372550	2	4.622-2
252.9	15.0	50.000	6.7737	1.23721	1 -2.1960	7.37416	6.95961	5.4788	7.4157800	2	5.638-2
252.9	15.0	70.000	1.0538	1.46576	1 -2.7671	8.83127	6.96278	5.7260	8.9000480	2	5.719-2
252.9	15.0	90.000	1.4514	1.66225	1 -3.2584	1.00837	6.96300	5.8820	1.0183978	3	5.741-2
252.9	15.0	110.000	1.8644	1.83699	1 -3.6932	1.11976	6.96301	5.9916	1.1332890	3	5.750-2
252.9	15.0	225.000	4.4274	2.61348	1 -5.6364	1.61474	6.96301	6.2974	1.6533983	3	5.770-2
252.9	15.0	350.000	7.4527	3.23637	1 -7.1937	2.01180	6.96301	6.4355	2.0872885	3	5.770-2
252.9	15.0	475.000	1.0562	3.74247	1 -8.4589	2.33442	6.96301	6.5141	2.4527708	3	5.770-2
252.9	30.0	0.010	2.4880-6	3.00416	1 -2.4368-3	3.33012-1	1.06234-2	5.3108-3	3.3316268-1	0.000	8.422-5
252.9	30.0	0.020	6.4820-6	3.00831	1 -4.8793-3	6.65540-1	2.12221-2	1.0613-2	6.6584160-1	3	1.682-4
252.9	30.0	0.050	2.1896-5	3.02076	1 -1.2274-2	1.66042	5.28446-2	2.6446-2	1.6611800	0.000	4.189-4
252.9	30.0	0.100	6.5100-5	3.04141	1 -2.4797-2	3.30945	1.04994-1	5.2590-2	3.3109866	2	8.326-4
252.9	30.0	0.200	2.1137-4	3.08240	1 -5.0555-2	6.57432	2.07280-1	1.0415-1	6.5774740	1	1.644-3
252.9	30.0	0.305	4.5594-4	3.12501	1 -7.8797-2	9.95616	3.11668-1	1.5695-1	9.9610770	1	2.472-3
252.9	30.0	0.500	1.1576-3	3.20294	1 -1.3325-1	1.61168	4.98829-1	2.5199-1	1.6125275	1	3.956-3
252.9	30.0	0.700	2.2134-3	3.28142	1 -1.9254-1	2.22828	6.81352-1	3.4561-1	2.2295093	1	5.403-3
252.9	30.0	1.000	4.4447-3	3.39654	1 -2.8713-1	3.12633	3.89662-1	4.7927-1	3.1281723	1	7.447-3
252.9	30.0	1.524	1.0249-2	3.59086	1 -4.6675-1	4.62527	1.34721	6.9452-1	4.6283269	1	1.069-2
252.9	30.0	2.000	1.7588-2	3.76077	1 -6.4336-1	5.91928	1.67809	8.7342-1	5.9235675	1	1.331-2
252.9	30.0	3.048	4.0709-2	4.11604	1 -1.0680	8.57788	2.29606	1.2189	8.5852820	1	1.823-2
252.9	30.0	5.000	1.0816-1	4.72301	1 -1.9479	1.29889	3.14614	1.7293	1.3003457	2	2.504-2
252.9	30.0	7.000	2.0598-1	5.28974	1 -2.9120	1.69779	3.74646	2.1352	1.7001143	2	2.985-2
252.9	30.0	10.000	4.0079-1	6.05824	1 -4.3393	2.22540	4.32830	2.5895	2.2292758	2	3.458-2
252.9	30.0	20.000	1.3571	8.18076	1 -9.1536	3.62533	5.06438	3.4254	3.6360292	2	4.082-2
252.9	30.0	30.480	2.6843	9.96438	1 -1.3490	4.77271	5.22766	3.8407	4.7926977	2	4.244-2
252.9	30.0	50.000	5.6471	1.26406	1 -2.0148	6.48151	2.27112	4.2144	6.5232685	2	4.311-2
252.9	30.0	70.000	9.0722	1.48844	1 -2.5755	7.91201	5.27424	4.4078	7.9809925	2	4.318-2
252.9	30.0	90.000	1.2747	1.68225	1 -3.0600	9.14743	5.27445	4.5265	9.2477840	2	4.318-2
252.9	30.0	110.000	1.6604	1.85507	1 -3.4921	1.02491	5.27446	4.6083	1.0384456	3	4.330-2
252.9	30.0	225.000	4.0965	2.62607	1 -5.4196	1.51638	5.27446	4.8298	1.5556414	3	4.340-2
252.9	30.0	350.000	7.0136	3.24642	1 -6.9704	1.91183	5.27446	4.9264	1.9873262	3	4.330-2
252.9	30.0	475.000	1.0130	3.75106	1 -8.2320	2.23351	5.27446	4.9803	2.3518761	3	4.340-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	65.0	0.010	2.0180-6	6.50191	1 -1.1241-3	1.53613-1	4.90035-3	2.4487-3	1.5393891-1	0.000	3.892-5
252.9	65.0	0.020	4.1430-6	6.50383	1 -2.2526-3	3.07182-1	9.79464-3	4.8981-3	3.0783354-1	-1.000-8	7.775-5
252.9	65.0	0.050	1.4086-5	6.50959	1 -5.6742-3	7.67577-1	2.44285-2	1.2225-2	7.6920715-1	1.000-8	1.940-4
252.9	65.0	0.100	3.2750-5	6.51919	1 -1.1494-2	1.53401	4.86670-2	2.4376-2	1.5372817	0.000	3.865-4
252.9	65.0	0.200	8.2500-5	6.53840	1 -2.3563-2	3.06350	9.65824-2	4.8531-2	3.0700710	0.000	7.669-4
252.9	65.0	0.305	1.5685-4	6.55857	1 -3.6934-2	4.66457	1.46003-1	7.3525-2	4.6746473	2.000-7	1.2160-3
252.9	65.0	0.500	3.5703-4	6.59602	1 -6.3102-2	7.62482	2.35931-1	1.1918-1	7.6415025	2.000-7	1.874-3
252.9	65.0	0.700	6.4483-4	6.63443	1 -9.2134-2	1.06434	3.25286-1	1.6500-1	1.0667035	1.000-6	2.583-3
252.9	65.0	1.000	1.2479-3	6.69206	1 -1.3948-1	1.51385	4.55221-1	2.3185-1	1.5172697	0.000	3.607-3
252.9	65.0	1.524	2.8470-3	6.79264	1 -2.3246-1	2.28970	6.65524-1	3.4306-1	2.2950381	0.000	5.285-3
252.9	65.0	2.000	4.9460-3	6.88387	1 -3.2729-1	2.98450	8.43186-1	4.3883-1	2.9916664	1.000-6	6.699-3
252.9	65.0	3.048	1.2021-2	7.08399	1 -5.6654-1	4.48206	1.19125	6.3231-1	4.4934807	1.000-6	9.466-3
252.9	65.0	5.000	3.5260-2	7.45266	1 -1.1009	7.16127	1.170757	9.3816-1	7.1814685	1.000-6	1.360-2
252.9	65.0	7.000	7.3287-2	7.82203	1 -1.7324	9.77246	2.10015	1.1980	9.8027555	1.700-5	1.673-2
252.9	65.0	10.000	1.5858-1	8.36191	1 -2.7745	1.34669	2.50702	1.5039	1.3514317	2.000-5	1.998-2
252.9	65.0	20.000	6.6801-1	1.00055	2 -6.4598	2.43043	3.07195	2.0968	2.4423034	2.800-5	2.467-2
252.9	65.0	30.480	1.4940	1.15082	2 -1.0113	3.39709	3.20951	2.3949	3.4184179	1.200-4	2.596-2
252.9	65.0	50.000	3.5593	1.38877	2 -1.6033	4.91641	3.24815	2.6540	4.9596998	1.500-4	2.644-2
252.9	65.0	70.000	6.1402	1.59549	2 -2.1199	6.23435	3.25101	2.7812	6.3049770	1.400-4	2.649-2
252.9	65.0	90.000	9.0393	1.77747	2 -2.5748	7.39439	3.25121	2.8559	7.4964630	2.1800-4	2.649-2
252.9	65.0	110.000	1.2174	1.94166	2 -2.9853	8.44104	3.25123	2.9057	8.5781660	2.200-4	2.653-2
252.9	65.0	225.000	3.3073	2.26872	2 -4.8492	1.31936	3.25123	3.0331	1.3588107	3.3000-4	2.650-2
252.9	65.0	350.000	5.9218	3.29546	2 -6.3698	1.70708	3.25123	3.0850	1.7827841	3.3000-4	2.650-2
252.9	65.0	475.000	8.7770	3.79305	2 -7.6138	2.02428	3.25123	3.1129	2.1428492	3.2000-4	2.660-2
252.9	100.0	0.010	-1.3500-6	1.00012	2 -7.3084-4	9.96977-2	3.17935-3	1.5870-3	1.0019813-1	0.000	2.533-5
252.9	100.0	0.020	2.5040-6	1.00024	2 -1.4621-3	1.99331-1	6.35531-3	3.1757-3	2.0033299-1	0.000	5.062-5
252.9	100.0	0.050	1.3315-5	1.00062	2 -3.6825-3	4.98170-1	1.58549-2	7.9329-3	5.0067505-1	2.000-8	1.263-4
252.9	100.0	0.100	2.8860-5	1.00124	2 -7.4630-3	9.96021-1	3.15994-2	1.5827-2	1.0010370	-1.000-7	2.515-4
252.9	100.0	0.200	6.0450-5	1.00249	2 -1.5313-2	1.99083	6.27635-2	3.1537-2	2.0008842	0.000	4.998-4
252.9	100.0	0.305	1.0590-4	1.00380	2 -2.4025-2	3.03396	9.49624-2	4.7820-2	3.0493261	1.000-7	7.569-4
252.9	100.0	0.500	2.2089-4	1.00525	2 -4.1118-2	4.96755	1.53701-1	7.7644-2	4.9928443	2.000-7	1.224-3
252.9	100.0	0.700	3.7750-4	1.00877	2 -6.0142-2	6.94569	2.12257-1	1.0766-1	6.9812615	0.000	1.690-3
252.9	100.0	1.000	6.8270-4	1.01256	2 -9.1305-2	9.90354	2.97097-1	1.5164-1	9.9546785	1.000-7	2.366-3
252.9	100.0	1.524	1.4694-3	1.01922	2 -1.5289-1	1.50427	4.37084-1	2.2529-1	1.5121552	0.000	3.479-3
252.9	100.0	2.000	2.4772-3	1.02531	2 -2.1620-1	1.96815	5.55677-1	2.8919-1	1.9786001	0.000	4.424-3
252.9	100.0	3.048	5.8657-3	1.03883	2 -3.7779-1	2.97958	7.90752-1	4.1970-1	2.9958359	0.000	6.300-3
252.9	100.0	5.000	1.7156-2	1.06426	2 -7.4647-1	4.82786	1.14694	6.3004-1	4.8555593	1.2000-6	9.155-3
252.9	100.0	7.000	3.6158-2	1.09047	2 -1.1933	6.67539	1.142460	8.1285-1	6.7156075	1.3000-6	1.137-2
252.9	100.0	10.000	8.0555-2	1.12968	2 -1.9517	9.36335	1.72044	1.0329	9.4238150	1.6000-6	1.375-2
252.9	100.0	20.000	3.7122-1	1.25998	2 -4.7854	1.76895	2.15212	1.4740	1.7829221	2.4000-5	1.733-2
252.9	100.0	30.480	8.8882-1	1.37845	2 -7.7632	2.55683	2.26424	1.7010	2.5808283	2.5000-5	1.837-2
252.9	100.0	50.000	2.3010	1.58217	2 -1.2831	3.85756	2.29732	1.8975	3.9042225	2.6000-5	1.876-2
252.9	100.0	70.000	4.1918	1.76607	2 -1.7426	5.02997	2.29986	1.9919	5.1044260	2.6000-5	1.879-2
252.9	100.0	90.000	6.4129	1.93174	2 -2.1568	6.08605	2.30004	2.0460	6.1922945	2.8000-5	1.884-2
252.9	100.0	110.000	8.8915	2.08353	2 -2.5363	7.05363	2.30005	2.0814	7.1951865	2.9000-5	1.887-2
252.9	100.0	225.000	2.6421	2.79025	2 -4.3031	1.15586	3.23005	2.1685	1.1958368	3.0000	1.880-2
252.9	100.0	350.000	4.9467	3.37894	2 -5.7798	1.53113	3.23005	2.2021	1.6073952	3.0000	1.880-2
252.9	100.0	475.000	7.5281	3.86491	2 -6.9987	1.84091	3.23005	2.2198	1.9600733	3.0000	1.880-2

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E	
252.9	200.0	0.010	1.3658-5	2.00006	2	-3.5875-4	4.92751-2	1.57374-3	7.8654-4	5.0279695-2	0.000	1.271-5
252.9	200.0	0.020	1.4088-5	2.00012	2	-7.2153-4	9.86141-2	3.14506-3	1.5728-3	1.0062195-1	-1.000-8	2.541-5
252.9	200.0	0.050	1.3518-5	2.00030	2	-1.8229-3	2.46630-1	7.84950-3	3.9252-3	2.5164914-1	-1.000-8	6.346-5
252.9	200.0	0.100	3.2210-5	2.00061	2	-3.6945-3	4.93198-1	1.56479-2	7.8414-3	5.0323770-1	-2.000-8	1.265-4
252.9	200.0	0.200	4.6400-5	2.00123	2	-7.5876-3	9.86332-1	3.10948-2	1.5625-2	1.0064205	0.000	2.514-4
252.9	200.0	0.305	6.4170-5	2.00188	2	-1.9192-2	1.50394	4.70699-2	2.3705-2	1.5345957	0.000	3.809-4
252.9	200.0	0.500	1.6195-4	2.00310	2	-2.0399-2	2.46446	7.62534-2	3.8520-2	2.5147648	1.000-7	6.167-4
252.9	200.0	0.700	2.3546-4	2.00435	2	-2.9869-2	3.44913	1.05400-1	5.3461-2	3.5196367	1.000-7	8.526-4
252.9	200.0	1.000	3.4090-4	2.00624	2	-4.5424-2	4.92503	1.47728-1	7.5405-2	5.0259080	0.000	1.195-3
252.9	200.0	1.524	6.7210-4	2.00958	2	-7.6266-2	7.49894	2.17830-1	1.1228-1	7.6531150	5.000-7	1.762-3
252.9	200.0	2.000	1.0503-3	2.01265	2	-1.0812-1	9.83310	2.77516-1	1.4442-1	1.0035953	1	0.000
252.9	200.0	3.048	2.1865-3	2.01950	2	-1.9001-1	1.49587	3.96643-1	2.1051-1	1.5269622	1	0.000
252.9	200.0	5.000	5.7666-3	2.03256	2	-3.7944-1	2.44552	5.79650-1	3.1837-1	2.4970504	1	1.000-6
252.9	200.0	7.000	1.1723-2	2.04627	2	-6.1318-1	3.41164	7.24812-1	4.81363-1	3.4845499	1	3.000-6
252.9	200.0	10.000	2.5634-2	2.06722	2	-1.0184	4.84774	8.82787-1	5.3030-1	4.9535190	1	2.000-6
252.9	200.0	20.000	1.2186-1	2.13814	2	-2.6107	9.52268	1.12386	7.7181-1	9.7449620	1	8.000-6
252.9	200.0	30.480	3.0888-1	2.21157	2	-4.3961	1.42464	1.19108	9.0010-1	1.4601825	2	1.000-5
252.9	200.0	50.000	8.7882-1	2.34267	2	-7.6576	2.26169	1.21237	1.0122	2.3248366	2	2.000-5
252.9	200.0	70.000	1.7279	2.46934	2	-1.0822	3.06923	1.21410	1.0656	3.1641457	2	4.000-5
252.9	200.0	90.000	2.8103	2.58922	2	-1.3819	3.83343	1.21423	1.0956	3.9633634	2	2.000-5
252.9	200.0	110.000	4.0978	2.70321	2	-1.6669	4.56010	1.21424	1.1147	4.7280398	2	2.000-5
252.9	200.0	225.000	1.4580	3.27366	2	-3.0931	8.19645	1.21424	1.1597	8.6324875	2	4.000-5
252.9	200.0	350.000	3.0281	3.78308	2	-4.3666	1.14437	1.21424	1.1758	1.2248613	3	0.000
252.9	200.0	475.000	4.9211	4.21852	2	-5.4552	1.42194	1.21424	1.1838	1.5457158	3	0.000
252.9	400.0	0.010	3.4810-6	4.00002	2	-1.7295-4	2.36495-2	7.54548-4	3.7408-4	2.5676869-2	0.000	6.491-6
252.9	400.0	0.020	-2.0074-5	4.00005	2	-3.4911-4	4.73628-2	1.50838-3	7.5191-4	5.1412490-2	7.000-9	1.300-5
252.9	400.0	0.050	-1.0435-5	4.00014	2	-8.7630-4	1.18311-1	3.76369-3	1.8795-3	1.2844340-1	1.000-8	3.240-5
252.9	400.0	0.100	3.0790-5	4.00029	2	-1.7716-3	2.36495-1	7.50336-3	3.7586-3	2.5677023-1	1.000-8	6.456-5
252.9	400.0	0.200	2.5700-5	4.00059	2	-3.6404-3	4.73054-1	1.49120-2	7.4910-3	5.1360260-1	0.000	1.283-4
252.9	400.0	0.305	-1.4000-6	4.00090	2	-5.7191-3	7.21470-1	2.25758-2	1.1368-2	7.8330665-1	3.000-8	1.945-4
252.9	400.0	0.500	1.1855-4	4.00148	2	-9.7886-3	1.18234	3.65813-2	1.8477-2	1.2937679	0.000	3.148-4
252.9	400.0	0.700	2.4367-4	4.00209	2	-1.4329-2	1.65495	5.05755-2	2.5644-2	1.7969936	1.000-7	4.353-4
252.9	400.0	1.000	3.1040-4	4.00299	2	-2.1801-2	2.36399	7.09109-2	3.6191-2	2.5669753	1.000-7	6.103-4
252.9	400.0	1.524	4.8200-4	4.00460	2	-3.6637-2	3.60186	1.04622-1	5.3935-2	3.9114118	0.000	9.000-4
252.9	400.0	2.000	6.4580-4	4.00608	2	-5.1980-2	4.72582	1.33359-1	6.9409-2	5.1322955	3.000-7	1.148-3
252.9	400.0	3.048	1.2681-3	4.00938	2	-9.1476-2	7.19812	1.90823-1	1.0127-1	7.8184485	4.000-7	1.643-3
252.9	400.0	5.000	2.7411-3	4.01571	2	-1.8319-1	1.17961	2.79430-1	1.5347-1	1.2816327	1	0.000
252.9	400.0	7.000	5.0703-3	4.02237	2	-2.9693-1	1.64970	3.50058-1	1.9978-1	1.7929067	1	0.000
252.9	400.0	10.000	1.0010-2	4.03263	2	-4.9538-1	2.35294	4.27402-1	2.5679-1	2.583248	1	2.000-6
252.9	400.0	20.000	4.2658-2	4.06794	2	-1.2882	4.67996	5.47177-1	3.7608-1	5.0361490	1	4.000-6
252.9	400.0	30.480	1.0553-1	4.10541	2	-1.1993	7.09048	1.581481-1	4.4028-1	7.7333825	1	5.000-6
252.9	400.0	50.000	3.0302-1	4.17455	2	-3.9194	1.15050	5.92708-1	4.9688-1	1.2585754	2	0.000
252.9	400.0	70.000	6.1097-1	4.24397	2	-5.6541	1.59308	5.93652-1	5.2388-1	1.7480407	2	0.000
252.9	400.0	90.000	1.0219	4.31193	2	-7.3530	2.02628	5.93726-1	5.3897-1	2.2301225	2	0.000
252.9	400.0	110.000	1.5321	4.37849	2	-9.0170	2.45056	5.93733-1	5.4859-1	2.7052066	2	0.000
252.9	400.0	225.000	6.2260	4.73705	2	-1.7981	4.73623	5.93733-1	5.7076-1	5.3174685	2	1.000-5
252.9	400.0	350.000	1.4314	5.08774	2	-2.6748	1.677169	5.93733-1	5.7840-1	7.9669425	2	3.000-5
252.9	400.0	475.000	2.5072	5.40591	2	-3.4702	1.899991	5.93733-1	5.8206-1	1.0461940	3	0.000

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
252.9	900.0	0.010	1.2184-4	9.00000	2 -5.4342-5	7.84068-3	2.53157-4	1.2413-4	1.2707337-2	0.000	3.212-6
252.9	900.0	0.020	-1.5789-4	9.00002	2 -1.2142-4	1.60000-2	5.06077-4	2.5107-4	2.5612571-2	1.210-6	7.680-6
252.9	900.0	0.050	2.0737-4	9.00004	2 -2.8722-4	3.95221-2	1.26277-3	6.2797-4	6.3733915-2	1.945-6	1.802-5
252.9	900.0	0.100	-2.2853-4	9.00009	2 -6.0248-4	7.95542-2	2.51751-3	1.2673-3	1.2778489-1	2.570-6	3.470-5
252.9	900.0	0.200	-1.3891-4	9.00019	2 -1.2265-3	1.58853-1	5.00341-3	2.5068-3	2.5541189-1	2.640-6	6.644-5
252.9	900.0	0.305	1.2858-4	9.00030	2 -1.9148-3	2.41977-1	7.57510-3	3.8077-3	3.8933393-1	2.760-6	9.939-5
252.9	900.0	0.500	2.7211-4	9.00049	2 -3.2797-3	3.96623-1	1.22752-2	6.2020-3	6.3821845-1	2.760-6	1.593-4
252.9	900.0	0.700	3.4326-4	9.00070	2 -4.8053-3	5.55286-1	1.97721-2	8.6103-3	8.9351915-1	2.780-6	2.191-4
252.9	900.0	1.000	3.0620-4	9.00100	2 -7.3165-3	7.93375-1	2.37984-2	1.2156-2	1.2765355	2.800-6	3.062-4
252.9	900.0	1.524	1.5880-4	9.00154	2 -1.2306-2	1.20925	3.51180-2	1.8112-2	1.9455620	2.800-6	4.505-4
252.9	900.0	2.000	3.8360-4	9.00204	2 -1.7457-2	1.58668	4.47703-2	2.3303-2	2.5531087	2.900-6	5.738-4
252.9	900.0	3.048	1.0458-3	9.00315	2 -3.0723-2	2.41735	6.40811-2	3.4009-2	3.8905902	2.900-6	8.203-4
252.9	900.0	5.000	1.7347-3	9.00528	2 -6.1584-2	3.96426	9.38878-2	5.1568-2	6.3818260	2.700-6	1.202-3
252.9	900.0	7.000	3.5311-3	9.00752	2 -9.9882-2	5.54737	1.17677-1	6.7160-2	8.9334880	2.700-6	1.506-3
252.9	900.0	10.000	5.7230-3	9.01098	2 -1.6685-1	7.92061	1.43776-1	8.6389-2	1.2760668	2.000-6	1.840-3
252.9	900.0	20.000	1.9938-2	9.02295	2 -4.3568-1	1.58101	1.84361-1	1.2674-1	2.5509692	3.000-6	2.375-3
252.9	900.0	30.480	4.5591-2	9.03575	2 -7.4688-1	2.40438	1.96078-1	1.4855-1	3.8857453	2.000-6	2.547-3
252.9	900.0	50.000	1.2276-1	9.05963	2 -1.3408	3.92866	1.99955-1	1.6783-1	6.3883150	3.000-6	2.620-3
252.9	900.0	70.000	2.4208-1	9.08393	2 -1.9480	5.47791	2.00285-1	1.7704-1	8.9071260	1.000-6	2.620-3
252.9	900.0	90.000	4.0232-1	9.10803	2 -2.5507	7.01463	2.00311-1	1.8219-1	1.1441126	2.000-6	2.620-3
252.9	900.0	110.000	6.0188-1	9.13195	2 -3.1485	8.53910	2.00313-1	1.8547-1	1.3970453	2.000-6	2.630-3
252.9	900.0	225.000	2.5216	9.26583	2 -6.4956	1.70735	2.00313-1	1.9302-1	2.8425810	2.000-5	2.630-3
252.9	900.0	350.000	6.0635	9.40473	2 -9.9682	2.59278	2.00313-1	1.9560-1	4.3978034	2.000-5	2.650-3
252.9	900.0	475.000	1.1077	9.53725	2 -1.3281	3.43749	2.00313-1	1.9682-1	5.9377005	2.000-5	2.610-3

SURFACE N	α	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	0.0	0.010	-5.1660-6	1.53377	7.9269-4	1.30397	5.12314-1	2.5615-1	1.3039748	1	3.766-3
289.0	0.0	0.020	-7.4160-6	2.17000	4.1630-5	1.84396	7.23389-1	3.6207-1	1.8439651	1	5.325-3
289.0	0.0	0.050	1.2250-6	3.43223	-1.7746-3	2.91497	1.14171	5.7170-1	2.9149924	1	8.406-3
289.0	0.0	0.100	5.2240-5	4.85677	-6.5937-3	4.12136	1.61013	8.0710-1	4.1214038	1	1.186-2
289.0	0.0	0.200	2.4331-4	6.87616	-1.9402-2	5.82643	2.26618	1.1386	5.8265420	1	1.670-2
289.0	0.0	0.305	6.3174-4	8.50209	-3.8272-2	7.19200	2.78300	1.44018	7.1922045	1	2.053-2
289.0	0.0	0.500	1.7845-3	1.09075	1	9.20141	3.453049	1.87854	9.2018365	1	2.800-5
289.0	0.0	0.700	3.5319-3	1.29332	-1.3029-2	1.08790	4.13374	2.1015	1.0879782	2	3.056-2
289.0	0.0	1.000	7.1910-3	1.55036	-2.1995-1	1.29887	4.87527	2.4925	1.2989965	2	3.604-2
289.0	0.0	1.524	1.6631-2	1.92339	-4.0557-1	1.60042	5.87254	3.0356	1.6006434	2	4.349-2
289.0	0.0	2.000	2.8203-2	2.21379	-5.9717-1	1.83039	6.58309	3.4368	1.8307330	2	4.884-2
289.0	0.0	3.048	6.3506-2	2.75748	-1.0748	2.25179	7.75842	4.1362	2.2524212	2	5.775-2
289.0	0.0	5.000	1.6119-1	3.58251	-2.0855	2.86696	9.16093	5.0645	2.8682877	2	6.858-2
289.0	0.0	7.000	2.9510-1	4.29010	-3.1886	3.37450	1.00488	5.7503	3.3766898	2	7.560-2
289.0	0.0	10.000	5.5035-1	5.20126	-4.8736	4.00556	1.08393	6.4936	4.0092910	2	8.207-2
289.0	0.0	20.000	1.7240	7.56406	-1.1012	5.56811	1.17295	7.8607	5.5786575	2	9.019-2
289.0	0.0	30.480	3.2708	9.46594	-1.4740	6.79102	1.18996	8.5760	6.8108505	2	9.245-2
289.0	0.0	50.000	6.5990	1.22535	-2.1679	8.57007	1.19389	9.2751	8.5116700	2	9.371-2
289.0	0.0	70.000	1.0350	1.45583	-2.7440	1.00391	1.19412	9.6696	1.0107921	3	9.420-2
289.0	0.0	90.000	1.4316	1.65357	-3.2383	1.12992	1.19413	9.9270	1.1399467	3	9.450-2
289.0	0.0	110.000	1.8439	1.82920	-3.6774	1.42485	1.19413	1.40112	1.2553755	3	9.460-2
289.0	0.0	225.000	4.4037	2.60823	-5.6249	1.17383	1.19413	1.0649	1.7775729	3	9.550-2
289.0	0.0	350.000	7.4263	3.23231	-7.1851	2.13606	1.19413	1.0903	2.2115484	3	9.570-2
289.0	0.0	475.000	1.0633	3.73911	-8.4521	2.45904	1.19413	1.1050	2.5774034	3	9.580-2
289.0	0.5	0.010	-2.7210-6	1.61321	5.7526-4	9.46425	3.71837-1	1.8591-1	9.4642630	1	2.733-3
289.0	0.5	0.020	-3.8250-6	2.22685	-1.4908-4	1.46724	5.75421-1	2.8804-1	1.4672501	1	4.235-3
289.0	0.5	0.050	6.5440-6	3.46845	-1.9367-3	2.52075	9.86903-1	4.9416-1	2.5207714	1	7.267-3
289.0	0.5	0.100	5.8900-5	4.88283	-6.7198-3	3.871820	1.455185	7.2771-1	3.7182411	1	6.000-6
289.0	0.5	0.200	2.5136-4	6.89432	-1.9489-2	5.41692	2.110546	1.0578	5.4170305	1	1.070-2
289.0	0.5	0.305	6.3966-4	8.51678	-3.8315-2	6.77958	2.62117	1.3203	6.7797820	1	1.552-2
289.0	0.5	0.500	1.7912-3	1.09190	-7.9017-2	8.78629	3.36766	1.7030	8.7867105	1	1.933-2
289.0	0.5	0.700	3.5364-3	1.29428	-1.3023-1	1.04624	3.97397	2.0184	1.0463172	2	2.484-2
289.0	0.5	1.000	7.1917-3	1.55136	-2.1984-1	1.25708	4.71144	2.4087	1.2572041	2	2.934-2
289.0	0.5	1.524	1.6624-2	1.92464	-4.0538-1	1.55850	5.70829	2.9507	1.5587247	2	3.482-2
289.0	0.5	2.000	2.8187-2	2.21436	-5.9693-1	1.78841	6.41863	3.3509	1.7887468	2	4.000-4
289.0	0.5	3.048	6.3470-2	2.75793	-1.0745	2.20972	7.59372	4.0485	2.2103490	2	3.100-4
289.0	0.5	5.000	1.6111-1	3.58286	-2.0851	2.82481	8.99606	4.9737	2.8261377	2	5.300-4
289.0	0.5	7.000	2.9499-1	4.29039	-3.1880	3.33231	9.88387	5.6566	3.3344986	2	5.647-2
289.0	0.5	10.000	5.5019-1	5.20150	-4.8730	3.96333	1.066743	6.3369	3.9670647	2	7.733-2
289.0	0.5	20.000	1.7237	7.56422	-1.0112	5.52583	1.15645	7.7548	5.5363815	2	8.071-2
289.0	0.5	30.480	3.2704	9.46607	-1.4739	6.74872	2.17345	8.4638	6.7685545	2	8.885-2
289.0	0.5	50.000	6.5983	1.22556	-2.1678	8.52775	1.17738	9.1553	8.5693540	2	9.106-2
289.0	0.5	70.000	1.0349	1.45584	-2.7439	9.99677	1.17761	9.5447	1.0665595	3	9.280-2
289.0	0.5	90.000	1.4315	1.65358	-3.2382	1.12569	1.17763	9.9785	1.1357135	3	9.310-2
289.0	0.5	110.000	1.8437	1.82920	-3.6772	1.23762	1.17763	9.9810	1.2511417	3	9.330-2
289.0	0.5	225.000	4.4035	2.60823	-5.6248	1.173409	1.17763	1.0509	1.7733380	3	9.390-2
289.0	0.5	350.000	7.4261	3.23231	-7.1850	2.13182	1.17763	1.0758	2.2073127	3	9.410-2
289.0	0.5	475.000	1.0633	3.73911	-8.4520	2.45480	1.17763	1.10903	2.5731678	3	9.400-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	1.0	0.010	-1.5140-6	1.83097	4.2942-4	7.06470	2.77562-1	1.3878-1	7.0647155	0.000	2.040-3
289.0	1.0	0.020	-1.9800-6	2.38933	-2.2963-4	1.18036	4.62804-1	2.3168-1	1.1803716	0.000	3.407-3
289.0	1.0	0.050	8.3750-6	3.57494	-1.9390-3	2.18637	8.55728-1	4.2845-1	2.1863833	0.000	6.303-3
289.0	1.0	0.100	5.9030-5	4.95865	-6.6193-4	3.35818	1.31072	6.5692-1	3.3582176	3.000-6	9.658-3
289.0	1.0	0.200	2.4635-4	6.94850	-1.9258-2	5.03828	1.95715	9.8333-1	5.0383935	9.000-6	1.442-2
289.0	1.0	0.305	6.2888-4	8.56069	-2.7970-2	6.39232	2.46960	1.2439	6.3925260	1.900-5	1.822-2
289.0	1.0	0.500	1.7676-3	1.09533	-7.8511-2	8.39099	3.21309	1.6248	8.3914085	3.500-5	2.371-2
289.0	1.0	0.700	3.4987-3	1.29718	-1.2959-1	1.00627	3.81780	1.9390	1.0063439	6.000-5	2.818-2
289.0	1.0	1.000	7.1318-3	1.55378	-2.1903-1	1.21672	4.55389	2.3281	1.2168381	1.100-4	3.366-2
289.0	1.0	1.524	1.6524-2	1.92658	-4.0434-1	1.51775	5.54950	2.8685	1.5179810	1.900-4	4.107-2
289.0	1.0	2.000	2.8052-2	2.21605	-5.9572-1	1.74746	6.25921	3.2677	1.7478009	2.900-4	4.641-2
289.0	1.0	3.048	6.3257-2	2.75929	-1.0730	2.16851	7.443359	3.9732	2.1691445	5.000-4	5.529-2
289.0	1.0	5.000	1.6076-1	3.58390	-2.0832	2.78338	8.83539	4.8852	2.7847002	9.100-4	6.610-2
289.0	1.0	7.000	2.9450-1	4.29127	-3.1859	3.29075	9.72299	5.5657	3.2929373	2.1340-3	7.309-2
289.0	1.0	10.000	5.4951-1	5.20222	-4.8705	3.92166	1.05132	6.3019	3.9253975	1.900-3	7.951-2
289.0	1.0	20.000	1.7225	7.56472	-1.0109	5.48402	1.14034	7.6513	5.4945655	3.140-3	8.759-2
289.0	1.0	30.480	3.2687	9.46647	-1.4736	6.870684	1.15734	8.3542	6.8726740	3.910-3	8.981-2
289.0	1.0	50.000	6.5960	1.22539	-2.1675	8.48581	1.16127	9.0381	8.5274160	4.650-3	9.103-2
289.0	1.0	70.000	1.0346	1.45587	-2.7435	9.95480	1.16150	9.4227	1.0023626	5.000-3	9.140-2
289.0	1.0	90.000	1.4312	1.65360	-2.3278	1.12149	1.16151	9.6729	1.1315146	5.400-3	9.180-2
289.0	1.0	110.000	1.8433	1.82922	-3.6769	1.23342	1.16152	9.8527	1.2469415	5.600-3	9.200-2
289.0	1.0	225.000	4.4029	2.60825	-5.6244	1.72989	1.16152	1.0372	1.7691337	6.200-3	9.250-2
289.0	1.0	350.000	7.4253	3.32322	-7.1846	2.12761	1.16152	1.0617	2.2031067	6.500-3	9.290-2
289.0	1.0	475.000	1.0632	3.73912	-8.4516	2.44506	1.16152	1.0759	2.5689606	6.500-3	9.280-2
289.0	2.0	0.010	-5.9500-7	2.52040	-2.6889-4	4.42437	1.73827-1	8.6913-2	4.4243848	0.000	1.278-3
289.0	2.0	0.020	-6.4500-7	2.95108	-2.3952-4	8.07966	3.16708-1	1.5855-1	8.0797000	1.000-7	2.332-3
289.0	2.0	0.050	7.4380-6	3.97242	-1.7175-3	1.67458	6.55186-1	3.2801-1	1.6745964	0.000	4.825-3
289.0	2.0	0.100	4.9980-5	5.25244	-6.0455-3	2.875858	1.07608	5.3926-1	2.7586185	1.000-6	7.929-3
289.0	2.0	0.200	2.1036-4	7.16111	-1.8213-2	4.37010	1.69608	8.5218-1	4.3702146	1.000-6	1.249-2
289.0	2.0	0.305	5.7436-4	8.73415	-3.6475-2	5.69125	2.19608	1.1062	5.6914545	1.000-5	1.619-2
289.0	2.0	0.500	1.6602-3	1.10894	-7.6393-2	7.65869	2.92795	1.4805	7.6591165	2.600-5	2.159-2
289.0	2.0	0.700	3.3342-3	1.30869	-1.2695-1	9.83107	3.52637	1.7910	9.83137710	4.800-5	2.602-2
289.0	2.0	1.000	6.8788-3	1.56340	-2.1573-1	1.14020	4.252704	2.1763	1.1403221	8.000-5	3.144-2
289.0	2.0	1.524	1.6112-2	1.93439	-4.0012-1	1.43974	5.24768	2.7125	1.4399676	1.600-4	3.882-2
289.0	2.0	2.000	2.7435-2	2.22281	-5.9084-1	1.68865	5.95492	3.1089	1.6889849	2.400-4	4.412-2
289.0	2.0	3.048	6.2384-2	2.76472	-1.0669	2.08867	7.12642	3.7996	2.0892992	4.500-4	5.295-2
289.0	2.0	5.000	1.5932-1	3.58808	-2.0756	2.70260	8.52610	4.7149	2.7039242	8.400-4	6.373-2
289.0	2.0	7.000	2.9252-1	4.29476	-3.1772	3.20948	9.441283	5.3898	3.2116670	1.230-3	7.067-2
289.0	2.0	10.000	5.4678-1	5.20510	-4.8608	3.83997	1.02025	6.1191	3.8437031	1.750-3	7.705-2
289.0	2.0	20.000	1.7176	7.56669	-1.0097	5.440172	1.10923	7.4514	5.4122745	2.930-3	8.503-2
289.0	2.0	30.480	3.2620	9.46805	-1.4723	6.62429	1.12062	8.81422	6.6441270	3.600-3	8.718-2
289.0	2.0	50.000	6.5864	1.22551	-2.1661	8.40303	1.13016	9.8117	8.4446395	4.280-3	8.830-2
289.0	2.0	70.000	1.0334	1.45597	-2.7421	9.87189	1.13039	9.1866	9.9407230	4.740-3	8.884-2
289.0	2.0	90.000	1.4298	1.65369	-2.2364	1.11319	1.13041	9.4301	1.1232166	5.000-3	8.910-2
289.0	2.0	110.000	1.8418	1.82931	-3.6754	1.22511	1.13041	9.6047	1.2386379	5.200-3	8.930-2
289.0	2.0	225.000	4.4004	2.60830	-5.6229	1.72157	1.13041	1.0108	1.7608142	5.800-3	9.000-2
289.0	2.0	350.000	7.4221	3.23237	-7.1831	2.11929	1.13041	1.0345	2.1947799	6.000-3	9.010-2
289.0	2.0	475.000	1.0628	3.73916	-8.4501	2.44227	1.13041	1.0482	2.5606296	6.000-3	9.000-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	4.0	0.010	-1.7700-7	4.28397	1.4672-4	2.441428	9.48540-2	4.7427-2	2.4143074	0.000	6.973-4
289.0	4.0	0.020	-1.5100-7	4.55070	-1.6815-4	4.667807	1.83341-1	9.1788-2	4.6781223	-1.000-7	1.350-3
289.0	4.0	0.050	3.9030-6	5.27068	-1.2153-3	1.07871	4.21941-1	2.1122-1	1.0787306	0.000	3.107-3
289.0	4.0	0.100	2.9700-5	6.29190	-4.6655-3	1.94354	7.57747-1	3.7969-1	1.9435894	1.000-6	5.581-3
289.0	4.0	0.200	1.4989-4	7.95496	-1.5377-2	3.34760	1.29781	6.5215-1	3.3477139	3.000-6	9.561-3
289.0	4.0	0.305	4.3303-4	9.39601	-3.2113-2	4.55789	1.75584	8.8453-1	4.5580963	7.000-6	1.295-2
289.0	4.0	0.500	1.3574-3	1.16178	-6.9810-2	6.41385	2.44621	1.23369	6.4142780	1.500-5	1.803-2
289.0	4.0	0.700	2.8467-3	1.35376	-1.1841-1	8.00383	3.02132	1.53344	8.0045235	3.400-5	2.229-2
289.0	4.0	1.000	6.0947-3	1.60132	-2.0472-1	1.00341	3.73144	1.9076	1.0035287	6.000-5	2.755-2
289.0	4.0	1.524	1.4775-2	1.96512	-3.8556-1	1.29718	4.70300	2.4309	1.2974038	1.200-4	3.477-2
289.0	4.0	2.000	2.5645-2	2.24964	-1.57367-1	1.52295	5.44007	2.8195	1.5232921	2.1900-4	3.998-2
289.0	4.0	3.048	5.9390-2	2.78633	-1.10452	1.93893	6.456079	3.4983	1.2395644	3.600-4	3.981-2
289.0	4.0	5.000	1.5423-1	3.60476	-2.0478	2.54918	7.95206	4.3986	2.5505092	6.800-4	5.934-2
289.0	4.0	7.000	2.8541-1	4.30870	-3.1452	3.05410	8.83335	5.0621	3.0562877	2.1030-3	6.622-2
289.0	4.0	10.000	5.3683-1	5.21660	-4.8242	3.68290	9.62298	5.7775	3.6866362	1.500-3	7.254-2
289.0	4.0	20.000	1.6995	7.57460	-1.0053	5.24227	1.05113	7.0769	5.2528270	2.520-3	8.037-2
289.0	4.0	30.480	3.2370	9.47437	-1.4675	6.46382	1.06812	7.7450	6.4836540	3.180-3	8.248-2
289.0	4.0	50.000	6.5506	1.22600	-2.1609	8.24163	1.07204	8.3872	8.2832445	3.750-3	8.352-2
289.0	4.0	70.000	1.0289	1.45638	-2.7367	9.71000	1.07227	8.7443	9.7788325	4.090-3	8.389-2
289.0	4.0	90.000	1.4245	1.65405	-3.2309	1.09697	1.07228	8.9750	1.1069959	4.300-3	8.410-2
289.0	4.0	110.000	1.8357	1.82963	-3.6698	1.20887	1.07229	9.1400	1.2223948	4.400-3	8.420-2
289.0	4.0	225.000	4.3911	2.60853	-5.6171	1.70526	1.07229	9.6138	1.7445078	4.800-3	8.450-2
289.0	4.0	350.000	7.4099	3.23255	-7.1771	2.10295	1.07229	9.8347	2.1784444	5.000-3	8.470-2
289.0	4.0	475.000	1.0613	3.73931	-8.4440	2.42591	1.07229	9.9624	2.5442776	4.900-3	8.480-2
289.0	8.0	0.010	-6.8000-8	8.14569	7.5184-5	1.23869	4.86665-2	2.4333-2	1.2387362	0.000	3.577-4
289.0	8.0	0.020	-4.0000-8	8.28907	-9.4028-4	2.45559	9.62338-2	4.8178-2	2.4556806	0.000	7.087-4
289.0	8.0	0.050	1.3280-6	8.70516	-7.0123-4	5.98610	2.34121-1	1.1719-1	5.9863390	-2.000-7	1.724-3
289.0	8.0	0.100	1.1600-5	9.35883	-2.9082-3	1.15217	4.49065-1	2.2500-1	1.1522273	1.000-6	3.307-3
289.0	8.0	0.200	6.9630-5	1.05489	-1.0694-2	2.15685	8.35395-1	4.1985-1	2.1569845	1.000-6	6.155-3
289.0	8.0	0.305	2.3020-4	1.16740	-2.3787-2	3.10177	1.19297	6.0102-1	3.1019995	1.000-6	8.792-3
289.0	8.0	0.500	8.2816-4	1.35267	-5.5286-2	4.64930	1.76853	8.9422-1	4.6497428	6.000-6	1.304-2
289.0	8.0	0.700	1.8897-3	1.52073	-0.7857-2	6.04121	2.27198	1.1538	6.0419265	1.100-5	1.675-2
289.0	8.0	1.000	4.3809-3	1.74476	-1.7602-1	7.87841	2.91451	1.4899	7.8796140	2.900-5	2.150-2
289.0	8.0	1.524	1.1515-2	2.08366	-3.4450-1	1.06150	3.81955	1.9741	1.0617281	6.000-5	2.820-2
289.0	8.0	2.000	2.0858-2	2.35389	-5.2313-1	1.27554	4.48209	2.3400	1.2762774	2.1000-4	3.313-2
289.0	8.0	3.048	5.1019-2	2.87115	-9.7768-1	1.67685	5.60028	2.9864	1.6774887	2.2100-4	4.149-2
289.0	8.0	5.000	1.3896-1	3.67071	-1.9571	2.27303	6.95948	3.8508	2.2743591	4.500-4	5.181-2
289.0	8.0	7.000	2.6324-1	4.36401	-3.0380	2.77031	7.82932	4.4900	2.7725039	7.200-4	5.850-2
289.0	8.0	10.000	5.0480-1	5.26237	-4.6994	3.39250	8.60860	5.1779	3.3962356	1.070-3	6.451-2
289.0	8.0	20.000	1.6387	7.60616	-0.8969	4.94246	9.49131	6.4164	4.9530120	1.920-3	7.225-2
289.0	8.0	30.480	3.1510	9.49959	-1.4503	6.15993	9.66060	7.0436	6.1797655	2.390-3	7.414-2
289.0	8.0	50.000	6.4257	1.22795	-2.1423	7.93407	9.69977	7.6373	7.9756805	2.880-3	7.506-2
289.0	8.0	70.000	1.0131	1.45802	-2.7173	9.40045	9.70208	7.9628	9.4692865	3.170-3	7.542-2
289.0	8.0	90.000	1.4057	1.65549	-3.2110	1.06589	9.70221	8.1713	1.0759151	3.300-3	7.550-2
289.0	8.0	110.000	1.8143	1.83093	-3.6496	1.17770	9.70221	8.3195	1.1912244	3.3500-3	7.570-2
289.0	8.0	225.000	4.3575	2.60943	-5.5959	1.67384	9.70221	8.7407	1.7130840	3.900-3	7.600-2
289.0	8.0	350.000	7.3660	3.23326	-7.1555	2.07141	9.70221	8.9350	2.1469044	4.000-3	7.610-2
289.0	8.0	475.000	1.0561	3.73992	-8.4421	2.39431	9.70221	9.0467	2.5126705	4.000-3	7.610-2

SURFACE	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	15.0	0.010	6.5000-8	1.50782	1	4.0613-5	2.61223-2	1.3061-2	6.6495325-1	0.000	1.920-4
289.0	15.0	0.020	-4.1000-8	1.51561	1	-5.1689-5	5.19775-2	2.6022-2	1.3264856	0.000	3.828-4
289.0	15.0	0.050	4.8100-7	1.53876	1	-3.8968-4	1.28692-1	6.4418-2	3.2909525	0.000	9.478-4
289.0	15.0	0.100	3.8800-6	1.57666	1	-1.6692-3	2.53316-1	1.2691-1	6.5007190	3.000-7	1.866-3
289.0	15.0	0.200	2.5840-5	1.65008	1	-6.5216-3	1.26978	2.4709-1	1.2699629	1	3.621-3
289.0	15.0	0.305	9.2690-5	1.72418	1	-1.5157-2	7.27061-1	3.6630-1	1.8923596	1	5.359-3
289.0	15.0	0.500	3.7376-4	1.85463	1	-3.7393-2	2.93267	5.747-1	2.9822103	1	8.344-3
289.0	15.0	0.700	9.2998-4	1.98054	1	-6.9312-2	4.03445	7.652-1	4.0252768	1	1.113-2
289.0	15.0	1.000	2.3710-3	2.15732	1	-1.3106-1	5.7418	1.0308	5.4755070	1	1.496-2
289.0	15.0	1.524	6.9742-3	2.43956	1	-2.7140-1	7.75318	1.4314	7.7555585	1	2.044-2
289.0	15.0	2.000	1.3505-2	2.67404	1	-4.2643-1	9.61395	1.7462	9.6174560	1	2.470-2
289.0	15.0	3.048	3.6314-2	3.13897	1	-8.3500-1	1.32173	2.3196	1.8784018	2	3.218-2
289.0	15.0	5.000	1.0846-1	3.88374	1	-1.7473	1.87705	3.1080	1.3223822	2	4.802-2
289.0	15.0	7.000	2.1582-1	4.54462	1	-2.7778	2.35108	3.7005	2.3532796	2	6.102-2
289.0	15.0	10.000	4.3206-1	5.41304	1	-4.3841	2.95252	4.3403	2.7562645	2	6.279-2
289.0	15.0	20.000	1.4883	7.71107	1	-9.4808	4.47215	5.4834	4.4827113	2	6.374-2
289.0	15.0	30.480	2.9305	9.58370	1	-1.4036	5.67625	6.0507	5.6960925	2	6.390-2
289.0	15.0	50.000	6.0956	1.23445	2	-2.0909	7.43822	6.5750	7.4798415	2	6.430-2
289.0	15.0	70.000	9.7061	1.46349	2	-2.6633	8.83822	6.8561	8.9668610	2	6.430-2
289.0	15.0	90.000	1.3549	1.86030	2	-3.1554	1.01523	7.0336	1.0252513	3	6.430-2
289.0	15.0	110.000	1.7559	1.83527	2	-3.5926	1.12674	7.1584	1.1402618	3	6.430-2
289.0	15.0	225.000	4.2641	2.61244	2	-5.5357	1.62203	7.5074	1.6612741	3	6.430-2
289.0	15.0	350.000	7.2429	3.23567	2	-7.4093	1.20192	7.6635	2.0947047	3	6.430-2
289.0	15.0	475.000	1.0412	3.77498	2	-8.3596	1.234188	7.7555	2.4602475	3	6.430-2
289.0	30.0	0.010	-3.8400-7	3.00391	1	1.9741-5	1.30837-2	6.5412-3	3.3317865-1	0.000	9.622-5
289.0	30.0	0.020	-4.2200-7	3.00783	1	-2.6572-5	2.60839-2	1.3058-2	6.6591185-1	4.000-6	1.922-4
289.0	30.0	0.050	-2.94100-7	3.01956	1	-1.9792-4	6.49500-2	3.2311-2	1.6615157	1.000-7	4.789-4
289.0	30.0	0.100	7.8000-7	3.03904	1	-8.3555-4	1.29019-1	6.4642-2	3.3123107	1.000-7	9.511-4
289.0	30.0	0.200	7.1400-6	3.07777	1	-3.4264-3	2.54659-1	1.2801-1	6.5825345	0.000	1.877-3
289.0	30.0	0.305	2.7870-5	3.11811	1	-8.1314-3	9.96751	1.9290-1	9.9724195	0.000	2.824-3
289.0	30.0	0.500	1.1698-4	3.19208	1	-2.0762-2	6.12597-1	3.0971-1	1.6154020	1	4.516-3
289.0	30.0	0.700	3.0720-4	3.26683	1	-3.9723-2	2.23359	4.2477-1	2.2348146	1	6.167-3
289.0	30.0	1.000	8.4230-4	3.37691	1	-7.9225-2	3.13627	5.8897-1	3.1381101	1	8.495-3
289.0	30.0	1.524	2.7466-3	3.56379	1	-1.7117-1	1.65108	8.5311-1	4.6483621	1	1.218-2
289.0	30.0	2.000	5.7264-3	3.72819	1	-2.7986-1	2.05416	1.0723	5.9541925	1	1.516-2
289.0	30.0	3.048	1.7419-2	4.67231	1	-5.4425-1	9.63382	1.4743	9.6412000	1	2.070-2
289.0	30.0	5.000	6.0202-2	4.67231	1	-1.3166	1.30914	2.1131	1.3105944	2	2.828-2
289.0	30.0	7.000	1.3119-1	5.23445	1	-2.1935	1.71229	2.6008	1.7148166	2	3.357-2
289.0	30.0	10.000	2.8690-1	6.00374	1	-3.6168	2.24505	3.1402	2.2489211	2	4.730-2
289.0	30.0	20.000	1.1338	8.13620	1	-8.3486	3.65500	4.1109	3.6656895	2	4.501-2
289.0	30.0	30.480	2.3721	9.92860	1	-1.2709	4.80751	4.5822	4.8274871	2	4.657-2
289.0	30.0	50.000	5.2049	1.26136	2	-1.2393	6.52110	5.0016	6.5628590	2	4.712-2
289.0	30.0	70.000	8.5216	1.48621	2	-2.5013	7.95421	5.2177	8.0231855	2	4.723-2
289.0	30.0	90.000	1.2103	1.68032	2	-2.8665	9.19128	5.3503	9.2916280	2	4.730-2
289.0	30.0	110.000	1.5875	1.85336	2	-3.1192	1.02941	5.4419	1.0429457	3	4.730-2
289.0	30.0	225.000	3.9346	2.652503	2	-5.3485	1.15119	5.6899	1.5604525	3	4.730-2
289.0	30.0	350.000	6.8685	3.274571	2	-6.7000	1.91675	5.7982	1.9927613	3	4.730-2
289.0	30.0	475.000	9.9568	3.75056	2	-8.1621	2.23849	5.8587	2.3568707	3	4.730-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	65.0	0.010	-1.7160-6	6.50180	1	8.3023-6	1.53634-1	6.03505-3	1.5395950-1	0.000	4.446-5
289.0	65.0	0.020	-1.2540-6	6.50361	1	-1.2781-5	3.07192-1	1.29377-2	3.0784292-1	1.000-8	8.885-5
289.0	65.0	0.050	-1.2840-6	6.50904	1	-2.2148-5	7.67629-1	3.00203-2	7.6925935-1	-1.000-8	2.211-4
289.0	65.0	0.100	1.5300-6	6.51809	1	-3.9615-4	1.53412	5.97843-2	1.5373927	-1.000-7	4.411-4
289.0	65.0	0.200	4.0700-6	6.53621	1	-1.6006-3	3.66396	1.18592-1	3.0705357	0.000	8.754-4
289.0	65.0	0.305	6.6600-6	6.55529	1	-3.8274-3	4.66574	1.79200-1	4.6758175	2.000-7	1.324-3
289.0	65.0	0.500	2.9800-5	6.59075	1	-9.8867-3	7.62796	2.89342-1	7.6446310	4.000-7	2.136-3
289.0	65.0	0.700	7.9400-5	6.62724	1	-1.9143-2	1.06494	1.38611-1	1.0672999	0.000	2.943-3
289.0	65.0	1.000	2.1550-4	6.68215	1	-3.9835-2	1.51503	5.55961-1	1.5184488	0.000	4.104-3
289.0	65.0	1.524	7.2670-4	6.77838	1	-8.6235-2	2.92227	8.12977-1	2.2976119	0.000	6.004-3
289.0	65.0	2.000	1.5643-3	6.86614	1	-1.4425-1	2.98872	1.02815	2.9959711	1.000-6	7.593-3
289.0	65.0	3.048	5.1253-3	7.05995	1	-3.1464-1	4.49078	1.44699	4.5021836	3.000-5	1.070-2
289.0	65.0	5.000	1.9923-2	7.42068	1	-7.5653-1	7.18039	2.00018	7.2005520	1.300-5	1.526-2
289.0	65.0	7.000	4.7711-2	7.78646	1	-1.3276	9.30345	2.51807	9.8336900	2.200-5	1.865-2
289.0	65.0	10.000	1.1656-1	8.32256	1	-2.3200	1.35155	2.98183	1.3562790	4.000-5	2.213-2
289.0	65.0	20.000	5.7360-1	9.96917	1	-5.9782	2.3988	3.59291	2.4517326	1.100-4	2.688-2
289.0	65.0	30.480	1.3531	1.14772	2	-9.6473	3.40959	3.72775	3.4309977	1.600-4	2.812-2
289.0	65.0	50.000	3.3476	1.38631	2	-1.5586	4.93227	3.76137	4.9755366	2.100-4	2.857-2
289.0	65.0	70.000	5.8679	1.59341	2	-2.0762	6.23225	3.76344	6.3228475	2.100-4	2.860-2
289.0	65.0	90.000	8.7138	1.77565	2	-2.5318	7.41366	3.76355	7.5157015	2.200-4	2.856-2
289.0	65.0	110.000	1.1800	1.94004	2	-2.9426	8.46130	3.76356	8.5952985	2.400-4	2.861-2
289.0	65.0	225.000	3.2473	2.68621	2	-4.6062	1.32166	3.76356	1.3611142	3.200-4	2.850-2
289.0	65.0	350.000	5.8422	3.29477	2	-6.3296	1.170950	3.76356	1.7852048	3.200-4	2.860-2
289.0	65.0	475.000	8.6804	3.79257	2	-7.5741	2.02675	3.76356	2.1453269	1.000-4	2.840-2
289.0	100.0	0.010	-7.7450-6	1.00011	2	3.0290-6	3.47376-2	3.91552-3	1.0023783-1	0.000	2.893-5
289.0	100.0	0.020	-2.5040-6	1.00023	2	-6.9269-6	1.99284-1	7.81067-3	2.0025557-1	1.000-3	5.781-5
289.0	100.0	0.050	5.1800-6	1.00058	2	-5.9104-5	4.76178-1	1.94833-2	5.0068340-1	0.000	1.442-4
289.0	100.0	0.100	-3.1600-6	1.00117	2	-2.5906-4	9.86102-1	3.88159-2	1.0011171	-1.000-7	2.873-4
289.0	100.0	0.200	-3.6400-6	1.00235	2	-1.0434-3	1.99099	7.70590-2	2.0010448	-1.000-7	5.704-4
289.0	100.0	0.305	6.2100-6	1.00329	2	-2.44901-3	3.03425	1.16537-1	3.0496190	0.000	8.633-4
289.0	100.0	0.500	2.1490-5	1.00591	2	-6.4455-3	4.76838	1.88451-1	4.9936286	-1.000-7	1.393-3
289.0	100.0	0.700	4.2220-5	1.00930	2	-1.2510-2	9.24735	2.60019-1	9.9829065	1.000-7	1.923-3
289.0	100.0	1.000	1.0680-4	1.01191	2	-2.5143-2	9.30565	3.63481-1	1.8382-1	-1.000-7	2.693-3
289.0	100.0	1.524	3.3670-4	1.01628	2	-3.6832-2	1.50502	5.33557-1	1.5129008	0.000	3.952-3
289.0	100.0	2.000	7.2960-4	1.02413	2	-9.5519-2	1.96938	6.77030-1	1.9798251	1.000-6	5.013-3
289.0	100.0	3.048	2.3951-3	1.03719	2	-2.1041-1	2.98220	1.95441-1	2.9984503	-1.000-6	7.103-3
289.0	100.0	5.000	9.4993-3	1.06203	2	-9.1464-1	4.83392	1.38160	4.8615899	3.000-6	1.026-2
289.0	100.0	7.000	2.3290-2	1.08785	2	-9.1792-1	9.88566	1.70471	9.7283345	1.000-6	1.265-2
289.0	100.0	10.000	5.9011-2	1.12677	2	-1.6385	9.38040	2.04115	9.4407920	1.400-5	1.518-2
289.0	100.0	20.000	3.1997-1	1.25309	2	-4.4469	1.77274	2.50710	1.7866922	4.000-5	1.880-2
289.0	100.0	30.480	8.0931-1	1.37588	2	-7.4343	2.56227	2.61383	2.5862466	6.000-5	1.977-2
289.0	100.0	50.000	2.1762	1.58002	2	-1.2516	3.66511	2.64565	3.9117429	6.000-5	2.009-2
289.0	100.0	70.000	4.0266	1.76419	2	-1.7719	5.03696	2.64748	5.1132785	9.000-5	2.012-2
289.0	100.0	90.000	6.2119	1.93007	2	-2.1266	6.99608	2.64750	6.2022810	9.000-5	2.012-2
289.0	100.0	110.000	8.6574	2.08201	2	-2.4306	7.06444	2.64759	7.2059590	1.200-4	2.015-2
289.0	100.0	225.000	2.6028	2.78926	2	-4.2746	1.15710	2.64759	1.1971521	1.000-4	2.022-2
289.0	100.0	350.000	4.8934	3.37827	2	-5.7471	1.133255	2.64759	1.6088165	3.200-4	2.030-2
289.0	100.0	475.000	7.4626	3.86444	2	-6.8762	1.184233	2.64759	1.9615482	2.000-4	2.020-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E	
289.0	200.0	0.010	7.4000-7	2.00005	2	3.1412-6	4.93271-2	1.93814-3	9.6889-4	5.0330610-2	0.000	1.454-5
289.0	200.0	0.020	-1.1752-5	2.00011	2	-6.1371-6	9.87180-2	3.86636-3	1.9346-3	1.0072376-1	0.000	2.906-5
289.0	200.0	0.050	-1.2323-5	2.00029	2	-3.1745-5	2.46699-1	9.64575-3	4.8284-3	2.5171627-1	0.000	7.247-5
289.0	200.0	0.100	-6.5600-6	2.00058	2	-1.2894-4	4.93271-1	1.92210-2	9.6344-3	5.0330950-1	1.000-8	1.445-4
289.0	200.0	0.200	-1.8230-5	2.00116	2	-5.1981-4	9.86415-1	3.81751-2	1.9193-2	1.0065017	0.000	2.870-4
289.0	200.0	0.305	-4.9000-7	2.00178	2	-1.2357-3	1.50350	5.77592-2	2.9098-2	1.5345554	1.000-7	4.345-4
289.0	200.0	0.500	-6.2500-6	2.00293	2	-3.2035-3	2.46469	9.34814-2	4.7260-2	2.5149994	0.000	7.027-4
289.0	200.0	0.700	1.5350-5	2.00412	2	-6.2185-3	3.49439	1.29093-1	6.5556-2	3.5198904	0.000	9.704-4
289.0	200.0	1.000	5.5900-5	2.00592	2	-1.2515-2	4.92525	1.80691-1	9.2371-2	5.0261280	0.000	1.359-3
289.0	200.0	1.524	1.1390-4	2.00911	2	-2.8381-2	7.49969	2.65823-1	1.3733-1	7.6540640	4.000-7	1.999-3
289.0	200.0	2.000	2.4430-4	2.01205	2	-4.7832-2	9.63470	3.37962-1	1.7641-1	1.0037522	0.000	2.542-3
289.0	200.0	3.048	7.6480-4	2.01866	1	1.49621	4.80932-1	2.5637-1	2.5637-1	1.5272926	1.000	3.617-3
289.0	200.0	5.000	2.8938-3	2.03141	2	-2.6210-1	2.44633	1.697544-1	3.8571-1	2.4978455	0.000	5.255-3
289.0	200.0	7.000	7.0254-3	2.04489	2	-4.7269-1	3.41310	1.866187-1	4.9880-1	3.4859748	1.000	6.526-3
289.0	200.0	10.000	1.7953-2	2.06565	2	-8.5713-1	4.55025	1.04551	6.3554-1	4.9559881	1.000	7.887-3
289.0	200.0	20.000	1.0344-1	2.13646	2	-2.4328	9.52897	1.30518	9.1128-1	9.7511365	1.000	9.919-3
289.0	200.0	30.430	2.7940-1	2.20998	2	-4.2215	1.42563	1.37091	1.0532	1.4611569	2.000	1.050-2
289.0	200.0	50.000	8.2983-1	2.34123	2	-7.4889	2.26327	1.38941	1.1748	2.3263789	2.000	1.072-2
289.0	200.0	70.000	1.6603	2.46801	2	-1.0657	3.07126	1.39066	1.2319	3.1661611	2.000	1.072-2
289.0	200.0	90.000	2.7251	2.58798	2	-1.3656	1.38589	1.39074	1.2639	3.9657757	2.000	1.075-2
289.0	200.0	110.000	3.9955	2.70206	2	-1.6508	4.56289	1.39074	1.2844	4.7307881	2.000	1.072-2
289.0	200.0	225.000	1.4392	3.27284	1	-3.0778	8.20050	1.39074	1.3325	8.6364895	2.000	1.074-2
289.0	200.0	350.000	3.0012	3.78248	2	-4.3519	1.14484	1.39074	1.3497	1.2253308	0.000	1.070-2
289.0	200.0	475.000	4.8868	4.21809	2	-5.4409	1.42245	1.39074	1.3582	1.5462241	0.000	1.070-2
289.0	400.0	0.010	-5.0409-5	4.00002	2	-3.2396-6	2.37713-2	9.25260-4	4.6179-4	2.5789102-2	0.000	7.448-6
289.0	400.0	0.020	-2.0074-5	4.00005	2	-3.7151-6	4.73515-2	1.85378-3	9.2420-4	5.1402060-2	5.400	1.489-5
289.0	400.0	0.050	-1.0435-5	4.00013	2	-1.5048-5	1.18283-1	4.62495-3	2.3118-3	1.2841735-1	5.000	3.703-5
289.0	400.0	0.100	3.0790-5	4.00027	2	-5.8365-5	2.36436-1	9.21663-3	4.6219-3	2.5671816-1	5.000	7.373-5
289.0	400.0	0.200	-2.8200-5	4.00055	2	-2.5022-4	4.73068-1	1.83072-2	9.2092-3	5.1361585-1	4.000	1.465-4
289.0	400.0	0.305	-1.4000-6	4.00085	2	-5.9280-4	7.21297-1	2.77021-2	1.3952-2	7.8314780-1	7.000	2.218-4
289.0	400.0	0.500	6.4640-5	4.00140	2	-1.5303-3	1.18219	4.48446-2	2.2660-2	1.2836249	1.000	3.587-4
289.0	400.0	0.700	-2.5990-5	4.00197	2	-2.3873-3	1.65519	6.19420-2	3.1455-2	1.7972163	0.000	4.955-4
289.0	400.0	1.000	-1.3100-5	4.00284	2	-6.0146-3	2.36419	8.67278-2	4.4334-2	2.5671592	1.000	6.940-4
289.0	400.0	1.524	1.0420-4	4.00437	2	-1.3633-2	3.60190	1.27661-1	6.5959-2	3.9114406	-1.000	1.021-3
289.0	400.0	2.000	7.8900-5	4.00579	2	-2.3005-2	4.72603	1.62387-1	8.4770-2	5.1324880	0.000	1.299-3
289.0	400.0	3.048	2.6860-4	4.00898	2	-5.1059-2	7.19876	2.31333-1	1.2332-1	7.8190360	1.000	1.852-3
289.0	400.0	5.000	1.1173-3	4.01514	2	-1.2660-1	1.17971	5.36172-1	1.8588-1	1.2817252	1.000	2.695-3
289.0	400.0	7.000	2.6029-3	4.02170	2	-2.2903-1	1.64989	4.18185-1	2.4083-1	1.7930778	1.000	3.355-3
289.0	400.0	10.000	6.2040-3	4.03186	2	-4.1720-1	2.35327	5.05936-1	3.0760-1	2.5586289	1.000	4.062-3
289.0	400.0	20.000	3.4156-2	4.06709	2	-1.2013	4.68062	6.34856-1	4.4366-1	5.0969400	1.000	5.135-3
289.0	400.0	30.480	9.2197-2	4.10459	2	-2.1136	7.09186	6.68382-1	5.1458-1	7.7346545	1.000	5.448-3
289.0	400.0	50.000	2.8040-1	4.11738	2	-3.6359	1.15074	6.78132-1	5.7576-1	1.2587950	2.000	5.560-3
289.0	400.0	70.000	5.7929-1	4.24323	2	-5.5717	1.59340	6.78812-1	6.0455-1	1.7483423	2.000	5.570-3
289.0	400.0	90.000	9.8133-1	4.31122	2	-7.7714	2.02669	6.78856-1	6.2060-1	2.2304994	2.000	5.580-3
289.0	400.0	110.000	1.4826	4.37780	2	-8.9360	2.45104	6.78859-1	6.3083-1	2.7056548	2.000	5.560-3
289.0	400.0	225.000	6.1275	4.73651	2	-1.7903	4.73705	6.78859-1	6.5442-1	5.3182470	2.000	5.570-3
289.0	400.0	350.000	1.4166	5.08731	2	-2.6673	1.697275	6.78859-1	6.5255-1	7.9679570	2.000	5.560-3
289.0	400.0	475.000	2.4876	5.40559	2	-3.4630	1.900112	6.78859-1	6.6544-1	1.0463121	-1.000	5.600-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
289.0	900.0	0.010	-3.8774-5	9.00000	2	-7.2473-7	7.96626-3	3.11775-4	1.6501-4	0.000	3.692-3
289.0	900.0	0.020	-2.3420-4	9.00001	2	-8.0365-6	1.60599-2	6.21963-4	3.1165-4	1.930-7	7.596-6
289.0	900.0	0.030	-1.9418-4	9.00004	2	-1.0788-5	3.98313-2	1.55173-3	7.6369-4	5.180-7	1.893-5
289.0	900.0	0.100	4.9429-4	9.00009	2	-5.1550-6	7.89616-2	3.09234-3	1.5379-3	1.700-6	3.828-5
289.0	900.0	0.200	2.1750-5	9.00018	2	-8.2402-5	1.58688-1	6.14259-3	3.0913-3	2.410-6	7.520-5
289.0	900.0	0.305	-1.8267-4	9.00028	2	-2.0486-4	2.42174-1	9.29513-3	4.6793-3	2.450-6	1.127-4
289.0	900.0	0.500	3.1150-5	9.00047	2	-5.1435-4	3.96720-1	1.50479-2	7.6013-3	2.510-6	1.809-4
289.0	900.0	0.700	1.8262-4	9.00066	2	-3.9620-4	5.55250-1	2.07862-2	1.0551-2	2.500-6	2.488-4
289.0	900.0	1.000	6.5290-5	9.00095	2	-2.0161-3	7.93376-1	2.91063-2	1.4870-2	2.600-6	3.476-4
289.0	900.0	1.524	-2.4240-4	9.00146	2	-4.5872-3	1.20927	4.28502-2	2.2138-2	2.600-6	5.106-4
289.0	900.0	2.000	2.2270-4	9.00194	2	-7.7190-3	1.58663	5.45134-2	2.8446-2	2.700-6	6.489-4
289.0	900.0	3.048	5.6330-4	9.00301	2	-1.7136-2	2.41715	7.76812-2	4.1405-2	2.700-6	9.240-4
289.0	900.0	5.000	5.2310-4	9.00509	2	-4.2565-2	3.96427	1.12944-1	6.2447-2	2.900-6	1.345-3
289.0	900.0	7.000	1.0361-3	9.00729	2	-7.7071-2	5.54802	1.40566-1	8.0943-2	2.700-6	1.673-3
289.0	900.0	10.000	3.3880-3	9.01072	2	-1.4053-1	7.92057	1.70171-1	1.0345-1	3.000-6	2.026-3
289.0	900.0	20.000	1.4363-2	9.02267	2	-4.0637-1	1.58107	2.13846-1	1.4947-1	3.000-6	2.564-3
289.0	900.0	30.480	3.6672-2	9.03547	2	-7.1734-1	2.40431	2.25225-1	1.7355-1	4.000-6	2.724-3
289.0	900.0	50.000	1.0873-1	9.05936	2	-1.3120	3.92882	2.28661-1	1.9438-1	2.000-6	2.785-3
289.0	900.0	70.000	2.2182-1	9.08367	2	-1.9200	5.47818	2.28899-1	2.0419-1	6.000-6	2.794-3
289.0	900.0	90.000	3.7566-1	9.10778	2	-2.5229	7.01501	2.28915-1	2.0967-1	1.000-5	2.800-3
289.0	900.0	110.000	5.6974-1	9.13170	2	-3.1209	8.53453	2.28916-1	2.1315-1	0.000	2.790-3
289.0	900.0	225.000	2.4561	9.26362	2	-6.4669	1.70743	2.29916-1	2.2117-1	1.000-5	2.800-3
289.0	900.0	350.000	5.9022	9.40456	2	-9.3424	2.59239	2.28916-1	2.2300-1	1.000-5	2.790-3
289.0	900.0	475.000	1.0341	9.55711	2	-1.3226	3.43761	2.28916-1	2.2520-1	1.000-5	2.800-3

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
313.0	0.0	0.010	-5.1424-4	1.49613	7.6990-2	1.33678	1	6.01363-1	1.3367819	1	4.181-3
313.0	0.0	0.020	-1.0273-3	2.11617	1.0849-1	1.89044	1	4.2516-1	1.8904449	1	5.912-3
313.0	0.0	0.050	-2.5545-3	3.34743	1.6960-1	2.98865	1	1.34194	2.9886667	1	9.334-3
313.0	0.0	0.100	-5.0557-3	4.73735	2.3521-1	4.22550	1	1.89273	4.2255465	1	1.317-2
313.0	0.0	0.200	-9.9458-3	6.70910	3.2035-1	5.97338	1	2.66351	5.9734900	1	1.854-2
313.0	0.0	0.305	-1.4835-2	8.29831	3.7788-1	7.37272	1	3.26995	7.3729190	1	2.278-2
313.0	0.0	0.500	-2.3345-2	1.06519	4.4631-1	9.43092	1	4.16774	9.4313420	1	2.890-2
313.0	0.0	0.700	-3.1325-2	1.26373	4.8205-1	1.11483	2	2.4678	1.1149053	2	3.387-2
313.0	0.0	1.000	-4.2035-2	1.51633	4.9670-1	1.33073	2	2.9263	1.3308495	2	3.993-2
313.0	0.0	1.524	-5.6544-2	1.88405	4.4450-1	1.63885	2	3.5600	1.6390785	2	4.812-2
313.0	0.0	2.000	-6.5784-2	2.17029	3.4521-1	1.87356	2	4.0267	1.8739027	2	5.398-2
313.0	0.0	3.048	-7.3319-2	2.70927	7.6253-3	2.30289	2	4.8367	2.303214	2	6.369-2
313.0	0.0	5.000	-4.6267-2	3.53155	-8.6062-1	2.92785	2	5.9039	2.9291690	2	7.539-2
313.0	0.0	7.000	2.4347-2	4.23994	-1.8936	3.4203	2	6.6859	3.442178	2	8.284-2
313.0	0.0	10.000	1.9795-1	5.15471	-3.5381	4.07963	2	7.5264	4.0833598	2	8.960-2
313.0	0.0	20.000	1.1676	7.53020	-8.7861	5.65227	2	9.0531	5.6628165	2	9.801-2
313.0	0.0	30.480	2.5569	9.43972	-1.3439	6.87953	2	1.35470	6.8993595	2	1.003-1
313.0	0.0	50.000	5.6578	1.22337	-2.0398	8.66238	2	1.35807	8.7039820	2	1.017-1
313.0	0.0	70.000	9.2212	1.45417	-2.6167	1.01334	3	1.1051	1.0202252	3	1.024-1
313.0	0.0	90.000	1.3025	1.65210	-3.1115	1.13949	3	1.1335	1.1495090	3	1.028-1
313.0	0.0	110.000	1.7003	1.82787	-3.5509	1.25151	3	1.35825	1.2650293	3	1.031-1
313.0	0.0	250.000	4.7697	2.74520	-5.8443	1.83614	3	1.35825	1.8820256	3	1.038-1
313.0	0.0	350.000	7.1613	3.23154	-7.0601	2.14610	3	1.35825	2.2215878	3	1.042-1
313.0	0.0	475.000	1.0321	3.73844	-8.3274	2.46915	3	1.35825	2.5875153	3	1.042-1
313.0	0.5	0.010	-2.6654-4	1.57746	5.5446-2	9.62709	1	4.33084-1	9.6271050	1	3.011-3
313.0	0.5	0.020	-6.4259-4	2.17444	8.5774-2	1.49576	1	6.72513-1	1.4957723	1	4.677-3
313.0	0.5	0.050	-1.8927-3	3.38457	1.4583-1	2.57513	1	1.1597	2.5751451	1	8.040-3
313.0	0.5	0.100	-4.0795-3	4.76366	2.1093-1	3.80235	1	1.70247	3.8023936	1	1.185-2
313.0	0.5	0.200	-8.5247-3	6.72771	2.9574-1	5.54339	1	2.47022	5.5435005	1	1.719-2
313.0	0.5	0.305	-1.3058-2	8.31336	3.5314-1	6.93959	1	3.07530	6.9397980	1	2.142-2
313.0	0.5	0.500	-2.11046-2	1.06637	4.2147-1	8.99489	1	3.94986	8.9953160	1	2.752-2
313.0	0.5	0.700	-2.8592-2	1.26472	4.5717-1	1.07107	2	4.65863	1.0711434	2	3.249-2
313.0	0.5	1.000	-3.8759-2	1.51715	4.7182-1	1.28682	2	5.51961	1.2869468	2	3.853-2
313.0	0.5	1.524	-5.2494-2	1.88471	4.2064-1	1.59481	2	6.67657	1.5950411	2	4.669-2
313.0	0.5	2.000	-6.1147-2	2.17086	3.2038-1	1.82946	2	7.49873	1.8297937	2	5.254-2
313.0	0.5	3.048	-6.7614-2	2.70973	-1.7138-2	2.25869	2	8.84294	2.2593210	2	6.224-2
313.0	0.5	5.000	-3.9019-2	3.53190	-8.8527-1	2.88356	2	1.04259	2.8848874	2	7.392-2
313.0	0.5	7.000	3.2858-2	4.24023	-1.9182	3.39770	2	1.1498	3.3989934	2	8.138-2
313.0	0.5	10.000	2.0802-1	5.15495	-3.5625	4.03527	2	1.22663	4.0389992	2	8.809-2
313.0	0.5	20.000	1.1815	7.53036	-8.8104	5.60786	2	1.31872	5.6184050	2	9.647-2
313.0	0.5	30.480	2.5738	9.43986	-1.3463	6.83510	2	1.33485	6.8549270	2	9.877-2
313.0	0.5	50.000	5.6791	1.22338	-2.0422	8.61793	2	1.33822	8.6595310	2	1.001-1
313.0	0.5	70.000	9.2461	1.45418	-2.6191	1.00889	3	1.33839	1.0157791	3	1.007-1
313.0	0.5	90.000	1.3054	1.65211	-3.1139	1.13504	3	1.33840	1.1450622	3	1.010-1
313.0	0.5	110.000	1.7033	1.82788	-3.5534	1.24706	3	1.33840	1.2605821	3	1.013-1
313.0	0.5	250.000	4.7743	2.74521	-5.8467	1.83614	3	1.33840	1.8775768	3	1.022-1
313.0	0.5	350.000	7.1667	3.23154	-7.0625	2.14165	3	1.33840	2.2217188	3	1.022-1
313.0	0.5	475.000	1.0327	3.73844	-8.3298	2.46471	3	1.33840	2.5830661	3	1.023-1

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
313.0	1.0	0.010	-1.4662-4	1.79955	4.1144-2	7.14397	2.21378-1	1.6068-1	7.1439900	0.000	2.235-3
313.0	1.0	0.020	-4.1142-4	2.34055	6.8629-2	1.19747	5.38357-1	2.6927-1	1.1974779	0.000	3.745-3
313.0	1.0	0.050	-1.4115-3	3.49361	1.2585-1	2.22592	9.99007-1	5.0007-1	2.2259413	0.000	6.947-3
313.0	1.0	0.100	-3.3008-3	4.84174	1.8949-1	3.42560	1.53324	7.6833-1	3.4256404	1.000-6	1.067-2
313.0	1.0	0.200	-7.3167-3	6.78322	2.7330-1	5.14661	2.29215	1.1517	5.1467240	1.000-5	1.595-2
313.0	1.0	0.305	-1.1506-2	8.35834	3.3032-1	6.53355	2.89321	1.4577	6.5337530	2.600-5	2.015-2
313.0	1.0	0.500	-1.8990-2	1.06988	3.9836-1	8.58021	3.76408	1.5044	8.5806300	5.200-5	2.622-2
313.0	1.0	0.700	-2.6119-2	1.26768	4.3396-1	1.02913	4.47089	2.2726	1.0291996	9.000-5	3.118-2
313.0	1.0	1.000	-3.5765-2	1.51962	4.4857-1	1.24446	5.33018	2.7286	1.2445822	1.500-4	3.721-2
313.0	1.0	1.524	-4.8767-2	1.88670	3.9746-1	1.55205	6.48563	3.3590	1.5522732	2.800-4	4.537-2
313.0	1.0	2.000	-5.6870-2	2.17259	2.9729-1	1.78647	7.30504	3.8232	1.7868113	4.100-4	5.119-2
313.0	1.0	3.048	-6.2346-2	2.47112	4.0007-2	2.21543	8.65039	4.6283	2.2160652	7.100-4	6.088-2
313.0	1.0	5.000	-3.2340-2	3.53296	1.9.0780-1	2.84006	1.02328	5.6876	2.8413670	1.280-3	7.251-2
313.0	1.0	7.000	4.0674-2	4.24112	1.19404	3.35408	1.12164	6.4630	3.3562645	1.830-3	7.993-2
313.0	1.0	10.000	2.1723-1	5.15568	1.3.5845	3.99153	1.20728	7.2948	3.9952611	2.450-3	8.661-2
313.0	1.0	20.000	1.1940	7.53086	1.8.8319	5.56397	1.29935	8.8000	5.5745145	4.180-3	9.493-2
313.0	1.0	30.480	2.5889	9.44025	1.1.3484	6.79114	1.31548	9.5760	6.8109715	2.506-3	9.715-2
313.0	1.0	50.000	5.6980	1.22341	2.2.0443	8.57391	1.8329	1.0329	8.6155180	6.000-3	9.853-2
313.0	1.0	70.000	9.2681	1.45421	2.2.6212	1.00449	3.13902	1.0752	1.0113748	6.500-3	9.900-2
313.0	1.0	90.000	1.3078	1.65213	2.3.1160	1.13063	3.13903	1.1029	1.1406558	6.800-3	9.930-2
313.0	1.0	110.000	1.7061	1.82790	2.3.5554	1.24265	3.13903	1.1227	1.2561743	7.100-3	9.960-2
313.0	1.0	250.000	4.7784	2.74522	2.5.8487	1.82728	3.13903	1.1874	1.8731647	7.900-3	1.004-1
313.0	1.0	350.000	7.1715	3.23156	2.7.0646	2.13723	3.13903	1.2076	2.2127251	8.100-3	1.006-1
313.0	1.0	475.000	1.0333	3.73845	2.8.3318	2.46029	3.13903	1.2234	2.5786515	8.100-3	1.007-1
313.0	2.0	0.010	-5.6607-5	2.49767	2.5610-2	4.44672	2.00040-1	1.0002-1	4.4467427	0.000	1.391-3
313.0	2.0	0.020	-1.8983-4	2.91173	4.6645-2	8.14396	3.66105-1	1.8312-1	8.1440050	0.000	2.546-3
313.0	2.0	0.050	-8.1634-4	3.89940	9.5649-2	1.69532	7.60666-1	3.8076-1	1.6953359	1.000-6	5.290-3
313.0	2.0	0.100	-2.1964-3	5.14222	1.5432-1	2.80128	1.25317	6.2796-1	2.8013258	1.000-6	8.717-3
313.0	2.0	0.200	-5.4298-3	7.00085	2.3450-1	4.44881	1.97962	9.9478-1	4.4489252	1.800-6	1.377-2
313.0	2.0	0.305	-8.9784-3	8.53592	2.9005-1	5.80046	2.56538	1.2926	5.8006690	1.500-5	1.786-2
313.0	2.0	0.500	-1.5517-2	1.08381	3.5697-1	7.81364	3.42199	1.7314	7.8140595	1.3900-5	2.383-2
313.0	2.0	0.700	-2.1864-2	1.27945	3.9218-1	9.50611	4.12111	2.0948	9.5068075	1.6700-5	2.872-2
313.0	2.0	1.000	-3.0539-2	1.52946	4.0666-1	1.16428	4.97376	2.5463	1.1644043	2.100-4	3.470-2
313.0	2.0	1.524	-4.2195-2	1.89463	3.5581-1	1.47027	6.12320	3.1714	1.4704987	2.300-4	4.282-2
313.0	2.0	2.000	-4.9298-2	2.17948	2.5601-1	1.70384	6.93963	3.6321	1.7041835	2.3500-4	4.861-2
313.0	2.0	3.048	-5.3009-2	2.71664	1.8.0440-2	2.13172	8.28157	4.4314	2.1323490	2.6200-4	5.824-2
313.0	2.0	5.000	-2.0563-2	3.53720	1.9.4688-1	2.75537	9.86151	5.4823	2.7566948	2.1.140-3	6.981-2
313.0	2.0	7.000	5.4366-2	4.24465	1.1.9785	3.26887	1.08441	6.2509	3.2710583	2.1.650-3	7.718-2
313.0	2.0	10.000	2.3320-1	5.15859	1.3.6215	3.95058	1.16999	7.0741	3.9096174	2.2.350-3	8.387-2
313.0	2.0	20.000	1.2153	7.53285	1.8.8668	5.47771	1.26203	8.5586	5.4882635	2.3.810-3	9.206-2
313.0	2.0	30.480	2.6142	9.44184	1.1.3518	6.70463	1.27815	9.3201	6.7244605	2.4.740-3	9.431-2
313.0	2.0	50.000	5.7290	1.22353	2.2.0477	8.48717	1.28152	1.0056	8.5287755	2.5.560-3	9.554-2
313.0	2.0	70.000	9.3038	1.45431	2.2.6245	1.9.95806	1.28169	1.0468	1.0026881	3.6.100-3	9.610-2
313.0	2.0	90.000	1.3118	1.65222	2.3.1192	1.12194	1.28170	1.0736	1.1319611	3.6.500-3	9.650-2
313.0	2.0	110.000	1.7104	1.82798	2.3.5586	1.23395	1.28170	1.0929	1.2474742	3.6.700-3	9.660-2
313.0	2.0	250.000	4.7846	2.74527	2.5.8519	1.81856	1.28170	1.1553	1.8644468	3.7.400-3	9.750-2
313.0	2.0	350.000	7.1788	3.23160	2.7.0677	2.12851	1.28170	1.1748	2.2040019	3.7.600-3	9.750-2
313.0	2.0	475.000	1.0341	3.73849	2.8.3349	2.45156	1.28170	1.1900	2.5699240	3.7.600-3	9.750-2

SURFACE N	α_o	HEIGHT	ΔH	THETA	$\Delta \theta$	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	ΔR	$\Delta R-E$
313.0	4.0	0.010	-1.6508-5	4.27064	1.3927-2	2.41817	1.08783-1	5.4392-2	2.4181999	0.000	7.564-4
313.0	4.0	0.020	-6.2541-5	4.52528	2.6863-2	4.69193	2.10912-1	1.0549-1	4.6919866	0.000	1.467-3
313.0	4.0	0.050	-3.3283-4	5.21586	6.1117-2	1.08513	4.86779-1	2.4366-1	1.0851525	0.000	3.385-3
313.0	4.0	0.100	-1.0696-3	6.20019	1.0759-1	1.96107	8.76852-1	4.3935-1	1.9611116	0.000	6.097-3
313.0	4.0	0.200	-3.1227-3	7.81100	1.7693-1	3.38881	1.50625	7.5703-1	3.3889195	4.000-6	1.048-2
313.0	4.0	0.305	-5.6203-3	9.21203	2.2762-1	4.62243	2.04084	1.0284	4.6226320	9.000-6	1.421-2
313.0	4.0	0.500	-1.0549-2	1.13782	2.9054-1	6.51664	1.4403	1.4024	6.5170600	2.300-5	1.982-2
313.0	4.0	0.700	-1.5546-2	1.32552	3.2431-1	8.14033	3.51749	1.7880	8.1410320	4.300-5	2.451-2
313.0	4.0	1.000	-2.2548-2	1.56819	3.3828-1	1.02143	4.34504	2.2247	1.0215577	7.000-5	3.028-2
313.0	4.0	1.524	-3.1932-2	1.92604	1.28845-1	1.32128	5.47140	2.8339	1.3215082	2.600-4	3.821-2
313.0	4.0	2.000	-3.7398-2	2.20683	1.9007-1	1.55153	6.27622	3.2852	1.5518713	2.500-4	4.389-2
313.0	4.0	3.048	-3.8344-2	2.73864	-1.4303-1	1.97513	7.60475	4.0698	1.9757654	4.900-4	5.338-2
313.0	4.0	5.000	-2.3742-3	3.55412	-1.0941	2.59493	9.17492	5.1023	2.5962532	9.200-4	6.481-2
313.0	4.0	7.000	7.5097-2	4.25875	-2.0316	3.10638	1.01536	5.8570	3.1085745	2.1370-3	7.209-2
313.0	4.0	10.000	2.5670-1	5.17019	-3.6701	3.74166	1.10070	6.6633	3.7453933	2.1970-3	7.868-2
313.0	4.0	20.000	1.2444	7.54080	-8.9075	5.31106	1.19259	8.1081	5.3216105	3.280-3	8.667-2
313.0	4.0	30.480	2.6470	9.44817	-1.3555	6.53694	1.20870	8.8425	6.5567725	4.050-3	8.876-2
313.0	4.0	50.000	5.7665	1.22402	-2.0510	8.31855	1.21207	9.5460	8.3601590	2.4830-3	8.994-2
313.0	4.0	70.000	9.3451	1.45472	-2.6276	9.78894	1.21224	9.9373	9.8577665	2.5270-3	9.034-2
313.0	4.0	90.000	1.3162	1.65258	-3.1222	1.10499	1.21224	1.0190	1.1150180	3.5500-3	9.060-2
313.0	4.0	110.000	1.7151	1.82830	-3.5615	1.21698	1.21225	1.0371	1.2305086	5.800-3	9.100-2
313.0	4.0	250.000	4.7908	2.74549	-5.8545	1.80153	1.21225	1.0956	1.8474102	3.6400-3	9.140-2
313.0	4.0	350.000	7.1858	3.23178	-7.0702	2.11445	1.21225	1.1137	2.1869436	3.6700-3	9.180-2
313.0	4.0	475.000	1.0349	3.73864	-8.3374	2.43449	1.21225	1.11278	2.5528492	3.6600-3	9.160-2
313.0	8.0	0.010	-4.1010-6	8.13869	7.1371-3	1.23923	5.57479-2	2.7874-2	1.2392728	0.000	3.876-4
313.0	8.0	0.020	-1.6687-5	8.27515	1.4069-2	2.45768	1.10476-1	5.5259-2	2.4577709	-1.000-7	7.682-4
313.0	8.0	0.050	-1.0039-4	8.67208	3.3754-2	5.99799	2.69035-1	1.3466-1	5.9982240	-2.000-7	1.871-3
313.0	8.0	0.100	-3.6849-4	9.29742	6.3280-2	1.15627	5.16847-1	2.5895-1	1.1563271	0.000	3.594-3
313.0	8.0	0.200	-1.2675-3	1.04408	1.11235-1	2.16961	9.63417-1	4.8430-1	2.1697359	0.000	6.698-3
313.0	8.0	0.305	-2.5288-3	1.15265	1.5160-1	3.12553	1.37764	6.9431-1	3.1257553	4.000-6	9.588-3
313.0	8.0	0.500	-5.3289-3	1.33214	2.0365-1	4.69506	2.04536	1.0348	4.6955070	9.000-6	1.423-2
313.0	8.0	0.700	-8.4181-3	1.49565	2.3303-1	6.10944	2.62956	1.3366	6.1101595	2.000-5	1.831-2
313.0	8.0	1.000	-1.2991-2	1.71441	2.4342-1	7.97889	3.37527	1.7284	7.9800985	3.700-5	2.351-2
313.0	8.0	1.524	-1.9165-2	2.04684	1.9910-1	1.07644	4.42162	2.2902	1.0766673	9.000-5	3.083-2
313.0	8.0	2.000	-2.2447-2	2.31301	1.0584-1	1.29470	5.18452	2.7139	1.2950391	2.1500-4	3.620-2
313.0	8.0	3.048	-2.0166-2	2.82489	-2.1479-1	1.70242	6.46325	3.4595	1.7030587	2.2900-4	4.523-2
313.0	8.0	5.000	1.8692-2	3.62099	-1.0554	2.30749	7.99609	4.4487	2.3088126	2.6100-4	5.630-2
313.0	8.0	7.000	9.7182-2	4.31471	-2.0671	2.81101	8.95951	5.1741	2.8132030	2.9500-4	6.335-2
313.0	8.0	10.000	2.7856-1	5.21637	-3.6881	3.43946	9.80372	5.9474	3.4431996	2.1400-3	6.971-2
313.0	8.0	20.000	1.2607	7.57250	-8.8937	4.99326	1.07166	7.3193	5.0098140	2.2480-3	7.743-2
313.0	8.0	30.480	2.6560	9.47346	-1.3325	6.22102	1.08772	8.0053	6.2408590	2.3040-3	7.930-2
313.0	8.0	50.000	5.7627	1.22597	-2.0466	7.99893	2.109108	8.6518	8.0405465	2.3650-3	8.028-2
313.0	8.0	70.000	9.3296	1.45636	-2.6224	9.46733	2.109125	9.0063	9.5361635	2.3980-3	8.065-2
313.0	8.0	90.000	1.3136	1.65402	-3.1166	1.07271	3.109125	9.2336	1.0827312	3.4100-3	8.080-2
313.0	8.0	110.000	1.7115	1.82960	-3.5555	1.18461	3.109125	9.3953	1.1981319	4.300-3	8.100-2
313.0	8.0	250.000	4.7818	2.74634	-5.8474	1.76886	3.109125	9.9108	1.8147498	3.4700-3	8.130-2
313.0	8.0	350.000	7.1737	3.23250	-7.0628	2.07870	3.109125	1.0068	2.1541970	3.4700-3	8.140-2
313.0	8.0	475.000	1.0334	3.73925	-8.3297	2.40167	3.109125	1.0191	2.5200355	3.4800-3	8.140-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
313.0	15.0	0.010	-8.9500-7	1.50744	1	3.8298-3	6.64963-1	2.99141-2	1.4957-2	0.000	2.080-4
313.0	15.0	0.020	-4.3880-6	1.51485	1	7.5944-3	5.96349-2	2.9829-2	1.3268167	1.000-7	4.149-4
313.0	15.0	0.050	-2.9039-5	1.53689	1	1.8524-2	3.292258	1.47681-1	3.2929806	1.000-7	1.027-3
313.0	15.0	0.100	-1.1419-4	1.57302	1	3.5585-2	6.50780	2.90864-1	6.5086245	-1.000-7	2.023-3
313.0	15.0	0.200	-4.3005-4	1.64319	1	6.5640-2	1.272759	5.64834-1	1.2727685	1.000-6	3.927-3
313.0	15.0	0.305	-9.1811-4	1.71422	1	9.1306-2	1.89799	8.35826-1	1.8982881	0.000	5.816-3
313.0	15.0	0.500	-2.1202-3	1.83971	1	1.2762-1	2.99524	1.30255	2.9957758	3.000-6	9.062-3
313.0	15.0	0.700	-3.5734-3	1.96135	1	1.4944-1	4.04738	1.73710	4.0482079	7.000-6	1.209-2
313.0	15.0	1.000	-5.8855-3	2.13285	1	1.5888-1	5.51282	2.32138	5.5141470	1.500-5	1.616-2
313.0	15.0	1.524	-9.0834-3	2.40819	1	1.2049-1	7.81987	1.6511	7.8222435	3.500-5	2.221-2
313.0	15.0	2.000	-1.0549-2	2.63814	1	3.9925-2	9.70546	2.0138	9.7089580	6.200-5	2.682-2
313.0	15.0	3.048	-6.6815-3	3.09671	1	-2.4738-1	1.33580	2.6724	1.3364502	2.1300-4	3.488-2
313.0	15.0	5.000	2.9646-2	3.83678	1	-1.0288	1.89828	6.41749	1.8996205	3.200-4	4.506-2
313.0	15.0	7.000	1.0202-1	4.49730	1	-1.9923	2.37769	7.33451	2.3798954	5.300-4	5.165-2
313.0	15.0	10.000	2.7111-1	5.36834	1	-3.5584	2.98478	8.14981	2.9885301	8.400-4	5.788-2
313.0	15.0	20.000	1.2065	7.67787	1	-8.6619	4.51366	9.04362	4.5242242	1.550-3	6.489-2
313.0	15.0	30.480	2.5553	9.55781	1	-1.3242	5.72191	9.20241	5.7417545	2.1940-3	6.559-2
313.0	15.0	50.000	5.5862	1.23249	2	-2.0135	7.48758	9.233578	7.5291990	2.320-3	6.737-2
313.0	15.0	70.000	9.0861	1.46183	2	-2.5867	8.94937	9.23746	9.0182005	2.570-3	6.759-2
313.0	15.0	90.000	1.2833	1.65884	2	-3.0792	1.02049	9.23754	1.0305125	2.700-3	6.770-2
313.0	15.0	110.000	1.6758	1.83395	2	-3.5170	1.13209	9.23754	1.1456138	3.2800-3	6.780-2
313.0	15.0	250.000	4.7164	1.274919	2	-5.8051	1.71540	8.4520	1.7612821	3.3100-3	6.810-2
313.0	15.0	350.000	7.0915	3.23490	2	-7.0194	2.02495	9.23754	2.1004401	3.200-3	6.810-2
313.0	15.0	475.000	1.0233	3.74131	2	-8.2854	2.34769	9.23754	2.4660550	3.200-3	6.810-2
313.0	30.0	0.010	-1.9300-7	3.00372	1	1.9177-3	3.33033-1	1.49814-2	7.4915-3	0.000	1.042-4
313.0	30.0	0.020	-9.9700-7	3.00745	1	3.8098-3	6.65651-1	2.99211-2	1.4966-2	-1.000-8	2.082-4
313.0	30.0	0.050	-6.7860-6	3.01861	1	9.3435-3	1.66102	7.45000-2	3.7291-2	1.000-7	5.184-4
313.0	30.0	0.100	-2.6910-5	3.03716	1	1.8103-2	3.31179	1.48014-1	7.4157-2	0.000	1.030-3
313.0	30.0	0.200	-1.0999-4	3.07408	1	3.3903-2	6.58341	2.92148-1	1.4688-1	-2.000-7	2.032-3
313.0	30.0	0.305	-2.4500-4	3.11262	1	4.7823-2	9.97660	4.39171-1	2.2134-1	0.000	3.057-3
313.0	30.0	0.500	-5.9833-4	3.18344	1	6.8291-2	1.61686	7.02530-1	9.9814990	1.000-6	4.890-3
313.0	30.0	0.700	-1.0538-3	3.25523	1	8.1159-2	2.823784	9.58988-1	1.6176964	1.000-6	6.673-3
313.0	30.0	1.000	-1.8233-3	3.36133	1	8.6839-2	3.14428	1.32023	3.1461188	2.000-6	9.186-3
313.0	30.0	1.524	-2.9140-3	3.54239	1	6.1562-2	4.66142	1.89007	4.6644575	9.000-6	1.316-2
313.0	30.0	2.000	-3.3058-3	3.70253	1	5.4559-3	5.97450	2.34904	5.9787650	1.600-5	1.636-2
313.0	30.0	3.048	-4.6850-4	4.04202	1	-2.0733-1	8.67858	3.19697	8.6859425	3.900-5	2.229-2
313.0	30.0	5.000	2.3310-2	4.63337	1	-8.3174-1	1.31729	4.33357	1.3187412	1.000-4	3.033-2
313.0	30.0	7.000	7.3879-2	5.19343	1	-1.6492	1.72375	5.11243	1.7260652	2.800-4	3.582-2
313.0	30.0	10.000	2.0031-1	5.96348	1	-3.0342	2.26041	5.83254	2.2642795	3.100-4	4.100-2
313.0	30.0	20.000	9.6807-1	8.10474	1	-7.7685	3.67769	6.65782	3.6883724	6.600-4	4.735-2
313.0	30.0	30.480	2.1439	9.90362	1	-1.2151	4.83383	6.80076	4.8538013	8.500-4	4.881-2
313.0	30.0	50.000	4.8866	1.25944	2	-1.8854	6.55082	2.84421	6.5925670	1.080-3	4.944-2
313.0	30.0	70.000	8.1290	1.48458	2	-2.4481	7.98581	2.684386	8.0547690	1.110-3	4.940-2
313.0	30.0	90.000	1.1646	1.67888	2	-2.9339	9.22410	6.84394	9.3244325	1.200-3	4.950-2
313.0	30.0	110.000	1.5360	1.85205	2	-3.3668	1.03278	6.84394	1.0463138	3.1300-3	4.970-2
313.0	30.0	250.000	4.4599	2.76113	2	-5.6395	1.61215	6.84394	1.6580514	3.1300-3	4.970-2
313.0	30.0	350.000	6.7690	3.24495	2	-6.8490	1.92050	6.84394	1.9960057	3.1400-3	4.970-2
313.0	30.0	475.000	9.8386	3.74989	2	-8.1114	2.24231	6.84394	2.3606870	3.1300-3	4.970-2

SURFACE N	α O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
313.0	65.0	0.010	-1.3010-6	6.50171	1	8.8374-4	1.53633-1	6.91024-3	1.5395826-1	0.000	4.816-5
313.0	65.0	0.020	2.0680-6	6.50343	1	1.7594-3	3.07151-1	1.38079-2	3.0780229-1	0.000	9.622-5
313.0	65.0	0.050	3.7700-7	6.50860	1	4.3186-3	7.67629-1	3.44301-2	7.6925950-1	1.000-8	2.399-4
313.0	65.0	0.100	-3.8600-6	6.51721	1	8.3856-3	1.53425	6.85694-2	1.5375265	1.000-7	4.780-4
313.0	65.0	0.200	-1.6790-5	6.53448	1	1.5774-2	3.06438	1.35980-1	3.0709559	1.000-7	9.478-4
313.0	65.0	0.305	-4.3130-5	6.55268	1	2.247-2	4.66666	2.05404-1	4.6767300	2.000-7	1.433-3
313.0	65.0	0.500	-1.1616-4	6.58658	1	3.2139-2	7.63043	3.31455-1	7.6470925	3.000-7	2.311-3
313.0	65.0	0.700	-2.1239-4	6.62153	1	3.8402-2	1.06541	4.56329-1	1.0677743	1	3.180-3
313.0	65.0	1.000	-3.7960-4	6.67428	1	4.1189-2	1.51597	6.35854-1	1.5193872	1	4.432-3
313.0	55.0	1.524	-6.0790-4	6.75717	1	2.8212-2	2.29432	9.28197-1	2.2996523	1	6.471-3
313.0	65.0	2.000	-6.5540-4	6.85226	1	-1.5020-3	2.99205	1.17707	2.9991979	1	8.173-3
313.0	65.0	3.048	3.9550-4	7.04129	1	-1.2012-1	4.49765	1.64415	4.5090362	1	1.428-2
313.0	65.0	5.000	9.1105-3	7.39623	1	-4.9491-1	7.19531	1.232756	7.2154475	1	1.627-2
313.0	65.0	7.000	2.9547-2	7.75898	1	-1.0249	9.82744	2.83007	9.8576315	1	1.981-2
313.0	65.0	10.000	8.6751-2	8.29359	1	-1.9871	1.35526	3.32913	1.3599884	2	2.335-2
313.0	65.0	20.000	5.0798-1	9.94354	1	-5.6400	2.44692	3.95843	2.4587630	2	2.801-2
313.0	65.0	30.480	1.2569	1.14556	2	-9.3246	3.41879	4.08616	3.4400800	2	2.914-2
313.0	55.0	50.000	3.2056	1.38457	2	-1.5278	4.94385	4.11498	4.9870894	2	2.700-4
313.0	55.0	70.000	5.6875	1.59190	2	-2.0460	6.26530	4.11649	6.3358650	2	2.956-2
313.0	65.0	90.000	8.4997	1.77429	2	-2.5019	7.42772	4.11657	7.5297300	2	2.960-2
313.0	65.0	110.000	1.1556	1.93879	2	-2.9132	8.47611	4.11657	8.6131790	2	2.960-2
313.0	65.0	250.000	3.7021	2.81921	2	-5.1143	1.40872	4.11657	1.4548119	3	2.950-2
313.0	65.0	350.000	5.87923	3.29402	2	-6.3013	1.71133	4.11657	1.7870273	3	4.000-4
313.0	65.0	475.000	8.6205	3.79191	2	-7.5460	1.202864	4.11657	2.1472183	3	2.950-2
313.0	100.0	0.010	-1.3500-6	1.00011	2	5.7333-4	9.96772-2	4.48333-3	1.0017773-1	0.000	3.134-5
313.0	100.0	0.020	-3.8930-6	1.00022	2	1.1391-3	1.99354-1	8.95019-3	2.0035561-1	1.000-8	6.264-5
313.0	100.0	0.050	5.1800-7	1.00055	2	2.8024-3	4.98195-1	2.23449-2	5.0069995-1	2.000-8	1.562-4
313.0	100.0	0.100	3.2500-6	1.00111	2	5.4455-3	9.96071-1	4.45180-2	1.0010868	-1.000-7	3.110-4
313.0	100.0	0.200	-1.0050-5	1.00224	2	1.0245-2	1.99112	8.83507-2	2.0011744	0.000	6.174-4
313.0	100.0	0.305	-1.3030-5	1.00342	2	1.4528-2	3.02454	1.33563-1	3.0499102	0.000	9.339-4
313.0	100.0	0.500	-3.6400-5	1.00563	2	2.0920-2	4.96707	2.15840-1	4.9943644	1.000-7	1.508-3
313.0	100.0	0.700	-6.7380-5	1.00792	2	2.5021-2	6.94866	2.97594-1	6.9842160	-2.000-7	2.080-3
313.0	100.0	1.524	-2.0360-4	1.01139	2	2.6949-2	9.90947	4.15564-1	9.9057990	-1.000-7	2.904-3
313.0	100.0	2.000	-1.9970-4	1.02320	2	-1.5938-3	1.97035	7.71311-1	1.9807911	1	4.255-3
313.0	100.0	3.048	3.5540-4	1.03593	2	-3.1418-2	2.98427	1.08920	3.0005026	1	7.619-3
313.0	100.0	5.000	4.6828-3	1.06033	2	-3.3904-1	4.83862	1.55898	4.8662662	1	1.093-2
313.0	100.0	7.000	1.4975-2	1.08589	2	-7.1269-1	6.69356	1.91296	6.7336930	1	1.341-2
313.0	100.0	10.000	4.4894-2	1.12464	2	-1.4103	9.39337	2.27438	9.4536930	1	1.597-2
313.0	100.0	20.000	2.8665-1	1.25105	2	-4.2113	1.77553	2.75345	1.7894752	2	1.950-2
313.0	100.0	30.480	7.5838-1	1.37408	2	-7.2091	2.56423	2.85736	2.5901898	2	2.039-2
313.0	100.0	50.000	2.0977	1.57849	2	-1.2300	3.87056	2.88201	3.9171678	2	2.069-2
313.0	100.0	70.000	3.9245	1.76282	2	-1.6908	5.04544	2.88335	5.1198350	2	2.073-2
313.0	100.0	90.000	6.0883	1.92881	2	-2.1057	6.10333	2.88342	6.2095015	2	2.073-2
313.0	100.0	110.000	8.5146	2.06085	2	-2.4688	7.07230	2.88342	7.2137735	2	2.075-2
313.0	100.0	250.000	3.0090	2.91734	2	-4.5771	1.24034	2.88342	1.2869582	3	2.070-2
313.0	100.0	350.000	4.8625	3.37754	2	-5.7276	1.53364	2.88342	1.6098978	3	2.070-2
313.0	100.0	475.000	7.4251	3.86379	2	-6.9432	1.84353	2.88342	1.9626937	3	2.070-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E	
313.0	200.0	0.010	7.4000-7	2.00005	2	2.8419-4	4.93287-2	2.21919-3	1.1074-3	5.0332225-2	0.000	1.574-5
313.0	200.0	0.020	1.4038-5	2.00011	2	5.6737-4	9.85938-2	4.43487-3	2.2134-3	1.0060207-1	0.000	3.145-5
313.0	200.0	0.050	5.9800-7	2.00027	2	1.3873-3	2.46643-1	1.10623-2	5.5344-3	2.5166188-1	1.000-8	7.853-5
313.0	200.0	0.100	1.9290-5	2.00055	2	2.6991-3	4.93160-1	2.20441-2	1.1038-2	5.0320075-1	-1.000-8	1.564-4
313.0	200.0	0.200	-5.3100-6	2.00111	2	5.0747-3	9.86384-1	4.37672-2	2.2003-2	1.0064716	-1.000-7	3.104-4
313.0	200.0	0.305	-1.3420-5	2.00169	2	7.1960-3	1.50401	6.61935-2	3.3365-2	1.5346673	0.000	4.701-4
313.0	200.0	0.500	-6.2500-6	2.00279	2	1.0371-2	2.46478	1.07056-1	5.4156-2	2.5150801	1.000-7	7.599-4
313.0	200.0	0.700	-1.0530-5	2.00393	2	1.2410-2	3.44963	1.47727-1	7.5083-2	3.5201283	1.000-7	1.048-3
313.0	200.0	1.000	-3.9000-6	2.00566	2	1.3320-2	4.92574	2.06540-1	1.0581-1	5.0266015	4.000-7	1.466-3
313.0	200.0	1.524	2.3100-5	2.00973	2	9.0298-3	7.50058	3.03252-1	1.5703-1	7.6547270	3.000-7	2.152-3
313.0	200.0	2.000	6.2400-5	2.01158	2	-9.4876-4	9.83593	3.84881-1	2.0144-1	1.0038719	-1.000-6	2.730-3
313.0	200.0	3.048	2.9530-4	2.01802	2	-4.1333-2	1.49649	5.45688-1	2.9199-1	1.5275665	1.000	3.874-3
313.0	200.0	5.000	1.7133-3	2.03053	2	-1.7338-1	2.44698	7.86480-1	4.3737-1	2.4984878	1.000-6	5.595-3
313.0	200.0	7.000	4.9800-3	2.04386	2	-3.6827-1	3.41420	9.71001-1	5.6342-1	3.4870548	1.000-6	6.905-3
313.0	200.0	10.000	1.4317-2	2.06449	2	-7.3994-1	4.85216	1.16338	7.1420-1	4.9578522	1.5000-6	8.285-3
313.0	200.0	20.000	9.4257-2	2.13528	2	-2.3097	9.53357	1.42995	1.0117	9.7556395	1.1300-5	1.028-2
313.0	200.0	30.480	2.6455-1	2.20888	2	-4.1029	1.42635	1.49211	1.1612	1.4618620	2.1000-5	1.080-2
313.0	200.0	50.000	8.0554-1	2.34021	2	-7.3744	2.26439	1.50795	1.2872	2.3274800	2.1000-5	1.097-2
313.0	200.0	70.000	1.6271	2.46704	2	-1.0544	3.07275	1.50886	1.3459	3.1676026	2.2000-5	1.098-2
313.0	200.0	90.000	2.6836	2.58706	2	-1.3544	3.83766	1.50891	1.3787	3.9675113	2.3000-5	1.098-2
313.0	200.0	110.000	3.9465	2.70117	2	-1.6397	4.56493	1.50891	1.3998	4.7327789	2.3000-5	1.101-2
313.0	200.0	250.000	1.7114	3.38155	2	-3.3407	8.90112	1.50891	1.4540	9.4050085	2.2000-5	1.102-2
313.0	200.0	350.000	2.9889	3.78183	2	-4.3414	1.14522	1.50891	1.4667	1.2257010	3.000	1.100-2
313.0	200.0	475.000	4.8715	4.21750	2	-5.4305	1.44228	1.50891	1.4755	1.5466412	3.1000-4	1.090-2
313.0	400.0	0.010	-2.3464-5	4.00002	2	1.3401-4	2.37084-2	1.06401-3	5.4147-4	2.5731100-2	0.000	8.049-6
313.0	400.0	0.020	-2.0074-5	4.00005	2	2.5886-4	4.73530-2	2.12636-3	1.0689-3	5.1403520-2	4.000-9	1.607-5
312.0	400.0	0.050	-6.4327-5	4.00013	2	6.5915-4	1.18414-1	5.30415-3	2.6593-3	1.2853841-1	0.000	4.009-5
313.0	400.0	0.100	3.8400-6	4.00026	2	1.2927-3	2.36510-1	1.05702-2	5.2912-3	2.5678413-1	3.000-8	7.984-5
313.0	400.0	0.200	-2.8200-5	4.00053	2	2.4312-3	4.73084-1	2.09887-2	1.0549-2	5.1363040-1	2.000-8	1.585-4
313.0	400.0	0.305	-3.2250-5	4.00081	2	3.4444-3	7.21513-1	3.17469-2	1.6000-2	7.8334610-1	5.000-8	2.400-4
313.0	400.0	0.500	1.0730-5	4.00134	2	4.9754-3	1.18236	5.13554-2	2.5974-2	1.2837787	1.000-7	3.879-4
313.0	400.0	0.700	-2.5995-5	4.00188	2	5.9504-3	1.65525	7.08804-2	3.6025-2	1.7972672	1.000-7	5.353-4
313.0	400.0	1.000	-1.3100-5	4.00271	2	6.3870-3	2.36427	9.91295-2	5.0793-2	2.5672320	1.000-7	7.487-4
313.0	400.0	1.524	7.7300-5	4.00419	2	4.3276-3	3.60208	1.45625-1	7.5407-2	3.9116102	0.000	1.100-3
313.0	400.0	2.000	7.8900-5	4.00556	2	-4.7925-4	4.72619	1.84913-1	9.6778-2	5.1326335	1.000-7	1.397-3
313.0	400.0	3.048	2.6860-4	4.00867	2	-1.9947-2	7.19900	2.62445-1	1.4043-1	7.8192575	3.000-7	1.983-3
313.0	400.0	5.000	9.5490-4	4.01472	2	-8.3838-2	1.17979	3.78953-1	2.1073-1	1.2817967	1.000	2.867-3
313.0	400.0	7.000	2.1963-3	4.02120	2	-1.7859-1	1.55004	4.68656-1	2.7195-1	1.7932166	1.000	3.547-3
313.0	400.0	10.000	5.5520-3	4.03130	2	-3.6044-1	2.35350	5.62759-1	3.4554-1	2.5588423	1.000	4.263-3
313.0	400.0	20.000	3.2154-2	4.06650	2	-1.1413	4.58144	6.95034-1	4.9226-1	5.0975125	1.000-6	5.308-3
313.0	400.0	30.480	8.8710-2	4.10402	2	-2.0555	7.09290	7.26724-1	5.6682-1	7.7356125	1.000-6	5.592-3
313.0	400.0	50.000	2.7466-1	4.17323	2	-3.37795	1.15091	7.35071-1	6.3008-1	1.2589501	2.000	5.690-3
313.0	400.0	70.000	5.7123-1	4.24269	2	-5.5157	1.59364	7.35569-1	6.5957-1	1.7485567	2.000-5	5.670-3
313.0	400.0	90.000	9.7094-1	4.31069	2	-7.2155	2.02698	7.35596-1	6.7600-1	2.2307716	2.000	5.690-3
313.0	400.0	110.000	1.4701	4.37728	2	-8.9804	2.45139	7.35598-1	6.8646-1	2.7059786	2.000	5.680-3
313.0	400.0	250.000	7.4753	4.80914	2	-1.9677	5.20376	7.35598-1	7.1292-1	5.8630885	2.000-5	5.660-3
313.0	400.0	350.000	1.4130	5.08685	2	-2.6619	6.97366	7.35598-1	7.1891-1	7.9687875	2.000	5.660-3
313.0	400.0	475.000	2.4828	5.40515	2	-3.4577	9.00224	7.35598-1	7.2289-1	1.0464143	3.1000-4	5.600-3

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
313.0	900.0	0.010	4.1536-5	9.00000 2	4.6986-5	7.90280-3	3.56986-4	1.7707-4	1.2745760-2	0.000	3.987-6
313.0	900.0	0.020	-3.1851-4	9.00001 2	8.0016-5	1.61242-2	7.13416-4	3.4930-4	2.5690325-2	1.199-6	9.230-6
313.0	900.0	0.050	-2.7449-4	9.00004 2	2.1461-4	3.98964-2	1.77061-3	8.7930-4	6.3966675-2	1.747-6	2.170-5
313.0	900.0	0.100	1.7305-4	9.00002 2	4.3901-4	7.92192-2	3.54651-3	1.7682-3	1.2757658-1	2.540-6	4.218-5
313.0	900.0	0.200	1.8237-4	9.00017 2	8.2229-4	1.58565-1	7.04229-3	3.5343-3	2.5523311-1	2.560-6	8.130-5
312.0	900.0	0.305	-2.7299-4	9.00027 2	1.1497-3	2.42246-1	1.06522-2	5.3815-3	3.8950113-1	2.850-6	1.221-4
312.0	900.0	0.500	-2.9017-4	9.00045 2	1.6600-3	3.96988-1	1.72325-2	8.7277-3	6.3844510-1	2.860-6	1.957-4
313.0	900.0	0.700	1.8262-4	9.00063 2	2.0030-3	5.55299-1	2.37855-2	1.2075-2	8.9352740-1	3.070-6	2.692-4
313.0	900.0	1.000	2.2590-4	9.00091 2	2.1504-3	7.93275-1	3.32679-2	1.7048-2	1.2764737	3.000-6	3.751-4
313.0	900.0	1.524	-1.9000-6	9.00140 2	1.4488-3	1.20912	4.88788-2	2.5317-2	1.9454866	3.100-6	5.500-4
313.0	900.0	2.000	2.2270-4	9.00186 2	-1.5863-4	1.58548	6.20738-2	3.2479-2	2.5529951	3.100-6	6.978-4
313.0	900.0	3.048	3.2220-4	9.00291 2	-3.7021-3	2.41742	8.81253-2	4.7153-2	3.8906378	3.100-6	9.898-4
313.0	900.0	5.000	1.0912-3	9.00494 2	-2.8181-2	3.96395	1.27310-1	7.0814-2	6.3816360	3.200-6	1.431-3
312.0	900.0	7.000	1.5995-3	9.00712 2	-6.0100-2	5.54776	1.57619-1	9.1407-2	8.9337295	3.400-6	1.771-3
313.0	900.0	10.000	3.4680-3	9.01053 2	-1.2144-1	7.92077	1.89263-1	1.1622-1	1.2760765 1	3.000-6	2.126-3
313.0	900.0	20.000	1.4363-2	9.02246 2	-3.8615-1	1.58112 1	2.34068-1	1.6583-1	2.5510408 1	3.000-6	2.651-3
313.0	900.0	30.450	3.5916-2	9.03528 2	-6.9834-1	2.40457 1	2.44889-1	1.9113-1	3.8858625 1	3.000-6	2.793-3
313.0	900.0	50.000	1.0849-1	9.05917 2	-1.2934	3.92297 1	2.47771-1	2.1265-1	6.3685080 1	3.000-6	2.843-3
313.0	900.0	70.000	2.2149-1	9.08348 2	-1.9010	5.47838 1	2.47044-1	2.2269-1	8.9074235 1	6.000-6	2.847-3
313.0	900.0	90.000	3.7508-1	9.10759 2	-2.5039	7.01529 1	2.47054-1	2.2828-1	1.1441543 2	0.000	2.840-3
313.0	900.0	110.000	5.6907-1	9.13151 2	-3.1019	8.53987 1	2.47055-1	2.3184-1	1.3970935 2	0.000	2.840-3
312.0	900.0	250.000	3.0356	9.29376 2	-7.1580	1.86801 2	2.47055-1	2.4082-1	3.1550203 2	0.000	2.840-3
313.0	900.0	350.000	5.9602	9.40437 2	-9.9234	2.59299 2	2.47055-1	2.4283-1	4.3979405 2	0.000	2.860-3
313.0	900.0	475.000	1.0938 1	9.53692 2	-1.3237 1	3.43774 2	2.47055-1	2.4416-1	5.9378745 2	2.000-5	2.870-3

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	0.0	0.010	-1.4311-3	1.43492	2.0535-1	1.39380	1	7.52116-1	1.3938039	1	4.799-3
344.5	0.0	0.020	-2.8607-3	2.02967	2.8994-1	1.97106	1	1.06315	1.9710714	1	6.783-3
344.5	0.0	0.050	-7.1318-3	3.21118	4.5581-1	3.11598	1	1.67814	3.1159951	1	1.071-2
344.5	0.0	0.100	-1.4182-2	4.54592	6.3813-1	4.40508	1	2.36616	4.4051227	1	1.511-2
344.5	0.0	0.200	-2.8106-2	6.44181	8.8536-1	6.22616	1	3.32776	6.2262725	1	2.126-2
344.5	0.0	0.305	-4.2354-2	7.97284	1.0688	7.68308	1	4.08280	7.6832830	1	2.611-2
344.5	0.0	0.500	-6.7942-2	1.02450	1	9.82419	1	5.17020	9.8246085	1	3.309-2
344.5	0.0	0.700	-9.3047-2	1.21678	1	1.6088	2	6.04783	1.1609546	2	3.876-2
344.5	0.0	1.000	-1.2862-1	1.46226	1	1.6749	1	7.10743	1.3849815	2	4.563-2
344.5	0.0	1.524	-1.8471-1	1.82146	1	1.8360	2	8.52223	1.7041642	2	5.490-2
344.5	0.0	2.000	-2.2981-1	2.10257	1	1.8807	2	9.51629	1.9467844	2	6.146-2
344.5	0.0	3.048	-3.1035-1	2.63534	1	1.7568	2	1.11269	2.3892549	2	7.228-2
344.5	0.0	5.000	-4.0153-1	3.45529	1	1.0935	2	2.29756	3.0303228	2	8.509-2
344.5	0.0	7.000	-4.3498-1	4.16556	1	1.5157-1	2	4.0906	3.5555351	2	9.313-2
344.5	0.0	10.000	-3.9341-1	5.08857	1	1.4511	2	1.50270	4.2043562	2	1.003-1
344.5	0.0	20.000	2.5305-1	7.48492	1	-6.7405	2	1.59623	5.7979755	2	1.090-1
344.5	0.0	30.480	1.3955	9.40549	1	-1.1434	2	1.61050	7.0403210	2	1.114-1
344.5	0.0	50.000	4.1413	1.22082	2	-1.8422	2	1.61304	8.8499105	2	1.129-1
344.5	0.0	70.000	7.4110	1.45204	2	-2.4202	3	1.61314	1.0350786	3	1.138-1
344.5	0.0	90.000	1.0962	1.65024	2	-2.9157	3	1.61314	1.1645271	3	1.143-1
344.5	0.0	110.000	1.4712	1.82619	2	-3.3956	3	1.61315	1.2801638	3	1.146-1
344.5	0.0	225.000	3.8617	2.60215	2	-5.3055	3	1.61315	1.8029490	3	1.158-1
344.5	0.0	350.000	6.7617	3.21065	2	-6.8667	3	1.61315	2.2371939	3	1.162-1
344.5	0.0	475.000	9.8371	3.73769	2	-8.1343	3	1.61315	2.6032036	3	1.164-1
344.5	0.5	0.010	-7.2249-4	1.51933	1.4590-1	9.90323	1	5.34393-1	9.9032475	1	3.410-3
344.5	0.5	0.020	-1.7957-3	2.09035	2.2709-1	1.54435	1	8.32913-1	1.5443576	1	5.314-3
344.5	0.5	0.050	-5.2238-3	3.24988	3.8987-1	2.66796	1	1.43645	2.6679736	1	9.166-3
344.5	0.5	0.100	-1.1362	4.57394	5.7055-1	3.94617	1	2.11865	3.9462081	1	1.353-2
344.5	0.5	0.200	-2.3391	6.46118	8.1683-1	5.75952	1	3.07617	5.7596285	1	1.965-2
344.5	0.5	0.305	-3.7206-2	7.98551	9.9990-1	7.21290	1	3.82937	7.2131065	1	2.449-2
344.5	0.5	0.500	-6.1276-2	1.02572	1	9.35074	1	4.91512	9.3511610	1	3.145-2
344.5	0.5	0.700	-8.5117-2	1.21780	1	1.13336	2	5.79186	1.1134313	2	3.710-2
344.5	0.5	1.000	-1.1910-1	1.46312	1	1.6052	2	6.85071	1.3373008	2	4.396-2
344.5	0.5	1.524	-1.7294-1	1.82214	1	1.7682	2	8.26485	1.6563340	2	5.321-2
344.5	0.5	2.000	-2.1634-1	2.10317	1	1.8110	2	9.25859	1.8988752	2	5.975-2
344.5	0.5	3.048	-2.9377-1	2.63581	1	1.6871	2	1.08688	2.3412463	2	7.054-2
344.5	0.5	5.000	-3.8046-1	3.45565	1	1.0728	2	1.27173	2.9822268	2	8.333-2
344.5	0.5	7.000	-4.1025-1	4.16686	1	8.2018-2	2	1.38322	3.5073936	2	9.132-2
344.5	0.5	10.000	-3.6416-1	5.08881	1	1.5206	2	1.47685	4.1561770	2	9.842-2
344.5	0.5	20.000	2.9339-1	7.48509	1	-0.8098	2	1.57038	5.7497445	2	1.071-1
344.5	0.5	30.480	1.4445	9.40562	1	-1.1504	2	1.58465	6.9920690	2	1.095-1
344.5	0.5	50.000	4.2028	1.22083	2	-1.8471	2	1.58719	8.8016400	2	1.109-1
344.5	0.5	70.000	7.4431	1.45205	2	-2.4271	3	1.58729	1.0302506	3	1.116-1
344.5	0.5	90.000	1.1043	1.65025	2	-2.9226	3	1.58729	1.1596983	3	1.121-1
344.5	0.5	110.000	1.4801	1.82620	2	-3.3625	3	1.58729	1.2753346	3	1.125-1
344.5	0.5	225.000	3.8744	2.60215	2	-5.3124	3	1.58729	1.7981184	3	1.135-1
344.5	0.5	350.000	6.7575	3.23066	2	-6.8736	3	1.58729	2.2323627	3	1.138-1
344.5	0.5	475.000	9.8455	3.73770	2	-8.1412	3	1.58729	2.6598372	3	1.140-1

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	1.0	0.010	-3.8993-4	1.74899	1.0719-1	7.27536	3.92589-1	1.9629-1	7.2753755	0.000	2.505-3
344.5	1.0	0.020	-1.1064-3	2.26255	1.8024-1	1.222608	6.61213-1	3.3072-1	1.2260856	0.000	4.218-3
344.5	1.0	0.050	-3.8544-3	3.36329	3.3475-1	2.29262	1.23409	6.1779-1	2.2926342	1.000-6	7.874-3
344.5	1.0	0.100	-9.1288-3	4.65461	5.1114-1	3.53979	1.88997	9.5218-1	3.5398326	5.000-6	1.213-2
344.5	1.0	0.200	-2.0508-2	6.51897	7.5422-1	5.33055	2.84529	1.4302	5.3306645	1.500-5	1.817-2
344.5	1.0	0.305	-3.2714-2	8.03531	9.3598-1	6.77349	3.59308	1.8115	6.7736958	3.500-5	2.296-2
344.5	1.0	0.500	-5.5301-2	1.02937	1.1819	8.90161	4.67388	2.3672	8.9020285	8.100-5	2.989-2
344.5	1.0	0.700	-7.7909-2	1.22088	1.3588	1.06791	5.54801	2.8242	1.0679851	1.400-4	3.553-2
344.5	1.0	1.000	-1.1035-1	1.46568	1.5392	1.29126	6.60463	3.3874	1.2913851	2.400-4	4.237-2
344.5	1.0	1.524	-1.6201-1	1.82420	1.7020	1.60974	8.01678	4.1640	1.6099707	4.400-4	5.157-2
344.5	1.0	2.000	-2.0376-1	2.10495	1.7447	1.85194	9.00955	4.7329	1.8522752	6.300-4	5.811-2
344.5	1.0	3.048	-2.7821-1	2.63723	1.6209	2.29372	1.06187	5.87125	2.2943473	1.090-3	6.884-2
344.5	1.0	5.000	-3.6063-1	3.45674	1.95798-1	2.93374	1.24664	6.9852	2.9350647	1.930-3	8.159-2
344.5	1.0	7.000	-3.8695-1	4.16776	1.6381-2	3.45791	1.35810	7.9047	3.4600954	2.760-3	8.954-2
344.5	1.0	10.000	-3.3661-1	5.08955	-1.5859	4.10503	1.45172	8.8784	4.1087641	2.3800-3	9.662-2
344.5	1.0	20.000	3.3130-1	7.48559	-6.8746	5.69163	1.54524	1.0607	5.7021755	6.020-3	1.051-1
344.5	1.0	30.480	1.4904	9.40602	-1.1568	6.92461	1.55950	1.1487	6.9444350	7.220-3	1.074-1
344.5	1.0	50.000	4.2605	1.22086	-1.8556	8.71235	1.56205	1.2338	8.7539475	8.430-3	1.089-1
344.5	1.0	70.000	7.5505	1.45208	-2.4335	1.01859	1.56214	1.2819	1.0254781	9.100-3	1.095-1
344.5	1.0	90.000	1.1119	1.65027	-2.9290	1.14490	1.56215	1.3133	1.1492241	9.500-3	1.100-1
344.5	1.0	110.000	1.4885	1.82632	-3.3689	1.25704	1.56215	1.3359	1.2705590	9.800-3	1.103-1
344.5	1.0	225.000	3.8961	2.60617	-5.3188	1.75410	1.56215	1.4019	1.7933389	1.070-2	1.111-1
344.5	1.0	350.000	6.7722	3.23067	-6.8900	2.15209	1.56215	1.4331	2.2275813	1.110-2	1.116-1
344.5	1.0	475.000	9.8627	3.73771	-8.1476	2.47523	1.56215	1.4513	2.5935896	1.130-2	1.117-1
344.5	2.0	0.010	-1.4804-4	2.66150	5.6047-2	4.48278	2.41897-1	1.2094-1	4.4827992	0.000	1.543-3
344.5	2.0	0.020	-5.0055-4	2.84948	1.2122-1	8.24853	4.44802-1	2.2248-1	8.2485765	2.000-7	2.838-3
344.5	2.0	0.050	-2.1912-3	3.78308	2.5226-1	1.872950	9.30715-1	4.6592-1	1.7295213	0.000	5.937-3
344.5	2.0	0.100	-5.9976-3	4.96643	4.1391-1	2.87239	1.54069	7.7219-1	2.8724357	2.000-6	9.831-3
344.5	2.0	0.200	-1.5094-2	6.74514	6.4574-1	4.58082	2.44270	1.2280	4.5809298	1.100-5	1.559-2
344.5	2.0	0.305	-2.5407-2	8.21986	8.2250-1	5.98415	3.16995	1.5983	5.9843505	1.2400-5	2.025-2
344.5	2.0	0.500	-4.5176-2	1.04384	1.0641	8.07469	4.23165	2.1432	8.0751100	5.700-5	2.705-2
344.5	2.0	0.700	-6.5430-2	1.23310	1.2388	9.83139	5.09552	2.5939	9.8320865	1.030-4	3.261-2
344.5	2.0	1.000	-9.4936-2	1.47588	1.4178	1.20464	6.14338	3.1509	1.2047588	1.800-4	3.938-2
344.5	2.0	1.524	-1.4244-1	1.83240	1.5797	1.52135	7.54767	3.9204	1.5215726	3.500-4	4.851-2
344.5	2.0	2.000	-1.8106-1	2.11206	1.6222	1.76260	8.453659	4.4847	1.7629364	5.300-4	5.500-2
344.5	2.0	3.048	-2.4992-1	2.64291	1.4988	2.20319	1.01414	5.4564	2.2038197	9.500-4	6.570-2
344.5	2.0	5.000	-3.2441-1	3.46107	1.83689-1	2.84216	1.19861	6.7178	2.8434867	1.720-3	7.832-2
344.5	2.0	7.000	-3.4437-1	4.17135	-1.0373-1	3.36578	1.30995	7.6282	3.3679723	2.490-3	8.622-2
344.5	2.0	10.000	-2.8628-1	5.09250	-1.7049	4.01245	1.40350	8.5905	4.0161838	3.470-3	9.323-2
344.5	2.0	20.000	4.0024-1	7.48759	-6.9915	5.59842	1.49698	1.0292	5.6089700	5.500-3	1.015-1
344.5	2.0	30.480	1.5737	9.40761	-1.1684	6.83114	1.51124	1.1153	6.8509670	6.580-3	1.038-1
344.5	2.0	50.000	4.3645	1.22098	-1.8671	8.61864	1.51379	1.1983	8.6602445	7.810-3	1.052-1
344.5	2.0	70.000	7.6717	1.45218	-2.4450	1.00921	1.51389	1.2449	1.0160955	8.400-3	1.058-1
344.5	2.0	90.000	1.1255	1.65036	-2.9404	1.13551	1.51389	1.2753	1.1455335	8.900-3	1.063-1
344.5	2.0	110.000	1.5034	1.82630	-3.3803	1.24764	1.51389	1.2971	1.2611627	9.200-3	1.066-1
344.5	2.0	225.000	3.9071	2.60632	-5.3301	1.74468	1.51389	1.3606	1.7839268	1.010-2	1.075-1
344.5	2.0	350.000	6.7983	3.23071	-6.8913	2.14267	1.51389	1.3906	2.2181620	1.040-2	1.078-1
344.5	2.0	475.000	9.8931	3.73775	-8.1589	2.46580	1.51389	1.4081	2.5841663	1.060-2	1.080-1

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	4.0	0.010	-4.3303-5	4.24953	3.5719-2	2.42434	1.30821-1	6.5410-2	2.4243722	0.000	8.347-4
344.5	4.0	0.020	-1.6348-4	4.48548	6.9270-2	4.71394	2.54188-1	1.2714-1	4.7139975	0.000	1.622-3
344.5	4.0	0.050	-8.7825-4	5.12049	1.5964-1	1.09542	5.89258-1	2.9503-1	1.0954400	0.000	3.760-3
344.5	4.0	0.100	-2.8703-3	6.05519	2.8610-1	1.98948	1.06653	5.3451-1	1.9895200	2.000-5	6.806-3
344.5	4.0	0.200	-8.5596-3	7.58266	4.8498-1	3.45642	1.84086	9.2559-1	3.4565285	6.000-6	1.175-2
344.5	4.0	0.305	-1.5759-2	8.91997	6.4524-1	4.72896	1.250032	1.2608	4.7291691	1.200-5	1.597-2
344.5	4.0	0.500	-3.0652-2	1.09982	8.7151-1	6.68721	1.349476	1.7700	6.6876290	3.400-5	2.233-2
344.5	4.0	0.700	-4.6720-2	1.28083	1.03386	8.36736	4.32097	2.1996	8.3680530	6.600-5	2.763-2
344.5	4.0	1.000	-7.0938-2	1.51598	1.2119	1.05127	5.33586	2.7368	1.0513946	1.300-4	3.417-2
344.5	4.0	1.524	-1.1098-1	1.86486	1.3703	1.36118	6.71000	3.4854	1.3614093	2.500-4	4.307-2
344.5	4.0	2.000	-1.4403-1	2.14028	1.4122	1.59878	7.68393	4.0371	1.5991179	4.000-4	4.943-2
344.5	4.0	3.048	-2.0302-1	2.66551	1.2900	2.03471	9.27181	4.9894	2.0353400	7.400-4	5.993-2
344.5	4.0	5.000	-2.6388-1	3.47836	1.63245-1	2.66953	1.11044	6.2264	2.6708570	1.400-3	7.231-2
344.5	4.0	7.000	-2.7314-1	4.18570	1.30431-1	3.19099	1.22132	7.1185	3.1931773	2.040-3	8.011-2
344.5	4.0	10.000	-2.0236-1	5.10425	1.9010	3.83583	1.31461	8.0586	3.8395680	2.890-3	8.694-2
344.5	4.0	20.000	5.1378-1	7.49558	1.71794	5.41931	1.40793	9.7092	5.4298570	4.680-3	9.503-2
344.5	4.0	30.480	1.7095	9.41396	1.1868	6.65097	1.42218	1.0535	6.6708045	5.680-3	9.714-2
344.5	4.0	50.000	4.5321	1.22147	1.8851	8.43754	1.42472	1.1324	8.4791475	6.670-3	9.842-2
344.5	4.0	70.000	7.8655	1.45259	2.4628	9.91053	1.42482	1.1763	9.9793560	7.210-3	9.892-2
344.5	4.0	90.000	1.1471	1.65072	2.9581	1.11732	1.42483	1.2049	1.1273418	7.500-3	9.930-2
344.5	4.0	110.000	1.5270	1.82563	2.33979	1.823942	1.42483	1.2253	1.82429486	7.800-3	9.970-2
344.5	4.0	225.000	3.9399	2.60545	2.53475	1.72640	1.42483	1.2844	1.7656491	8.600-3	1.004-1
344.5	4.0	350.000	6.8388	3.23089	2.69086	1.12436	1.42483	1.3121	2.1998552	8.800-3	1.005-1
344.5	4.0	475.000	9.9402	3.73790	2.80176	2.44748	1.42483	1.3282	2.5658426	8.900-3	1.008-1
344.5	9.0	0.010	-1.1353-5	8.12766	1.8270-2	1.24008	6.69163-2	3.3458-2	1.2401217	0.000	4.270-4
344.5	9.0	0.020	-4.4544-5	8.25345	3.6161-2	2.46096	1.32699-1	6.6374-2	2.4610492	-1.000-7	8.465-4
344.5	8.0	0.050	-2.6483-4	8.62041	8.7652-2	6.01667	3.23674-1	1.6203-1	6.0169080	0.000	2.065-3
344.5	9.0	0.100	-9.7911-4	9.20135	1.6701-1	1.36275	6.23139-1	3.1227-1	1.1628084	0.000	3.976-3
344.5	9.0	0.200	-3.4252-3	1.02711	3.0609-1	2.18995	1.16517	5.8596-1	2.1900938	1.000-6	7.434-3
344.5	9.0	0.305	-7.0076-3	1.12944	4.2869-1	3.16370	1.66975	8.4205-1	3.1639231	4.000-6	1.066-2
344.5	9.0	0.500	-1.5405-2	1.29984	6.1408-1	4.76916	2.48492	1.2385	4.7696017	1.200-5	1.587-2
344.5	9.0	0.700	-2.5379-2	1.45620	7.5838-1	5.22040	3.19852	1.6281	6.2211185	2.400-5	2.043-2
344.5	9.0	1.000	-4.1497-2	1.66578	9.1346-1	8.14161	4.10725	2.1067	8.1428165	5.800-5	2.626-2
344.5	8.0	1.524	-6.9794-2	1.93938	1.0599	1.10072	5.37785	2.7933	1.1009512	1.300-4	3.445-2
344.5	8.0	2.000	-9.4020-2	2.24960	1.0095	1.32521	6.29804	3.3092	1.3255485	2.200-4	4.041-2
344.5	9.0	3.048	-1.3765-1	2.75406	9.8213-1	1.74389	7.82305	4.2107	1.7445216	4.500-4	5.038-2
344.5	9.0	5.000	-1.7839-1	3.54666	1.34089-1	2.36290	9.61007	5.3918	2.3642252	9.100-4	6.233-2
344.5	9.0	7.000	-1.7285-1	4.24262	1.58090-1	2.87595	1.07008	6.2461	2.8781460	1.390-3	6.980-2
344.5	9.0	10.000	-8.5662-2	5.15102	2.41500	3.51367	1.16233	7.1436	3.5174026	2.030-3	7.635-2
344.5	9.0	20.000	6.6471-1	7.52748	1.74059	5.08727	1.25603	8.7013	5.0978195	3.390-3	8.394-2
344.5	9.0	30.480	1.8637	9.43935	1.2079	6.31475	1.26923	9.4666	6.3345900	4.180-3	8.583-2
344.5	8.0	50.000	4.7377	1.22342	2.19047	8.09759	1.27177	1.6184	8.1392025	2.4890-3	8.685-2
344.5	8.0	70.000	8.0960	1.45423	2.24816	9.56858	1.27187	1.0578	9.6374120	5.350-3	8.777-2
344.5	8.0	90.000	1.1723	1.65216	2.29765	1.08300	1.27187	1.0831	1.0930203	5.600-3	8.750-2
344.5	9.0	110.000	1.5541	1.82793	2.34159	1.19501	1.27187	1.1012	1.2085371	5.700-3	8.760-2
344.5	9.0	225.000	3.9752	2.60735	2.33644	1.69174	1.27187	1.1527	1.7309832	6.300-3	8.820-2
344.5	9.0	350.000	6.8811	3.23161	2.69251	2.08958	1.27187	1.1766	2.1650730	6.600-3	8.840-2
344.5	9.0	475.000	9.9866	3.73951	2.80176	2.44126	1.27187	1.1903	2.5309937	6.600-3	8.840-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	15.0	0.010	-3.2980-6	1.50684	1	9.7991-3	6.65100-1	3.58896-2	6.6517630-1	0.000	2.290-4
344.5	15.0	0.020	-1.2889-5	1.51366	1	1.9501-2	1.32718	7.15639-2	1.3273332	0.000	4.566-4
344.5	15.0	0.050	-7.9350-5	1.53398	1	4.8008-2	3.29574	7.72931-2	3.2961394	2.000-7	1.131-3
344.5	15.0	0.100	-3.0752-4	1.56736	1	9.3611-2	6.51984	3.49371-1	6.5206670	2.000-7	2.230-3
344.5	15.0	0.200	-1.1626-3	1.63246	1	1.7816-1	1.27698	6.79103-1	1.2771649	1	4.333-3
344.5	15.0	0.305	-2.5375-3	1.69871	1	2.5751-1	1.90732	1.00571	1.9076162	1	6.420-3
344.5	15.0	0.500	-6.1161-3	1.81646	1	3.8592-1	3.01659	1.56891	3.0172251	1	1.000-6
344.5	15.0	0.700	-1.0801-2	1.93143	1	4.9158-1	4.08378	2.09356	4.0845974	1	5.000-6
344.5	15.0	1.000	-1.9053-2	2.04977	1	6.1172-1	5.57379	2.79821	5.5751160	1	1.337-2
344.5	15.0	1.524	-3.4861-2	2.35954	1	7.3189-1	7.92580	1.38401	7.9281680	1	1.700-5
344.5	15.0	2.000	-4.9261-2	2.58273	1	7.6583-1	9.85111	4.63022	9.8545950	1	4.800-5
344.5	15.0	3.048	-7.5895-2	3.03224	1	6.6116-1	1.35818	5.98902	1.9331323	2	2.964-2
344.5	15.0	5.000	-9.6525-2	3.76672	1	6.6949-2	1.93180	7.64500	1.9331323	2	3.843-2
344.5	15.0	7.000	-7.8891-2	4.42819	1	-8.0946-1	2.41941	8.68137	2.4216052	2	4.935-2
344.5	15.0	10.000	1.7796-2	5.30487	1	-2.3337	3.03483	9.57130	3.0385692	2	5.629-2
344.5	15.0	20.000	7.7242-1	7.63347	1	-7.4748	4.57666	1.04784	4.5872212	2	1.160-3
344.5	15.0	30.480	1.9335	9.52400	1	-1.2095	5.79045	1.06188	5.8102860	2	2.070-3
344.5	15.0	50.000	4.8172	1.22995	2	-1.9015	7.56094	1.06440	7.6025540	2	2.600-3
344.5	15.0	70.000	8.1546	1.45972	2	-2.4759	9.02528	1.06450	9.0941125	2	3.040-3
344.5	15.0	90.000	1.1761	1.65698	2	-2.9690	1.02824	1.06450	1.0382663	3	3.330-3
344.5	15.0	110.000	1.5561	1.83228	2	-3.4073	1.13996	1.06450	1.1534827	3	3.500-3
344.5	15.0	225.000	3.9683	2.61036	2	-5.3525	1.63583	1.06450	1.6750787	3	3.600-3
344.5	15.0	350.000	6.8664	3.23401	2	-6.9116	2.03328	1.06450	2.1087779	3	4.000-3
344.5	15.0	475.000	9.9671	3.74056	2	-8.1780	2.35611	1.06450	2.4744744	3	4.200-3
344.5	30.0	0.010	-1.3420-6	3.00342	1	4.9062-3	3.33060-1	1.79714-2	3.3321049-1	0.000	1.147-4
344.5	30.0	0.020	-3.8730-6	3.00685	1	9.7808-3	6.65725-1	3.58958-2	6.6602655-1	0.000	2.291-4
344.5	30.0	0.050	-2.0260-5	3.01713	1	2.4200-2	1.66141	8.93741-2	1.6621782	1.000-7	5.706-4
344.5	30.0	0.100	-8.0200-5	3.03423	1	4.7565-2	3.31343	1.77545-1	3.3149735	0.000	1.133-3
344.5	30.0	0.200	-3.0913-4	3.06836	1	9.1876-2	6.58966	3.50374-1	6.5928035	-4.000-7	2.236-3
344.5	30.0	0.305	-6.9398-4	3.10410	1	1.3468-1	9.99066	5.26595-1	9.9955360	0.000	3.364-3
344.5	30.0	0.500	-1.7565-3	3.17006	1	2.0635-1	1.62043	8.42012-1	1.6212697	1	5.375-3
344.5	30.0	0.700	-3.2377-3	3.23730	1	2.6835-1	2.24445	1.14880	2.2456676	1	7.333-3
344.5	30.0	1.000	-6.0276-3	3.33730	1	3.4183-1	3.15664	1.58011	3.1584745	1	1.000-6
344.5	30.0	1.524	-1.1845-2	3.50951	1	4.1994-1	4.68640	2.25832	4.6896362	1	5.000-5
344.5	30.0	2.000	-1.7547-2	3.66326	1	4.4332-1	6.01271	2.80199	6.0169585	1	1.443-2
344.5	30.0	3.048	-2.8587-2	3.99286	1	3.6646-1	8.74308	3.79815	8.7554165	1	1.791-2
344.5	30.0	5.000	-3.4251-2	4.57553	1	-1.0493-1	1.32986	5.11196	1.3313063	2	2.432-2
344.5	30.0	7.000	-1.4871-2	5.13371	1	-8.4515-1	1.74127	5.98550	1.7435851	2	3.285-2
344.5	30.0	10.000	6.7707-2	5.90642	1	-2.1892	2.28366	6.76907	2.2875168	2	3.856-2
344.5	30.0	20.000	7.2024-1	8.06271	1	-6.9528	3.71116	7.60527	3.7218314	2	4.378-2
344.5	30.0	30.480	1.8068	9.87100	1	-1.1372	4.87214	7.73958	4.8920974	2	4.981-2
344.5	30.0	50.000	4.4213	1.25696	2	-1.8101	6.59356	7.76406	6.6352910	2	5.113-2
344.5	30.0	70.000	7.5576	1.82250	2	-2.3738	8.03096	7.76503	8.0999115	2	5.160-2
344.5	30.0	90.000	1.0983	1.67704	2	-2.8602	9.27081	7.76506	9.3711355	2	5.170-2
344.5	30.0	110.000	1.4615	1.85040	2	-3.2936	1.03756	7.76507	1.0510956	3	1.490-3
344.5	30.0	225.000	3.7950	2.62297	2	-5.2250	1.52992	7.76507	1.5691734	3	5.180-2
344.5	30.0	350.000	6.6253	3.24406	2	-6.7777	1.92574	7.76507	2.0012476	3	5.190-2
344.5	30.0	475.000	9.6678	3.74915	2	-8.0405	2.24763	7.76507	2.3660099	3	5.200-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	65.0	0.010	7.7400-7	6.50158	1	1.53596-1	8.28905-3	4.1440-3	1.5392134-1	0.000	5.300-5
344.5	65.0	0.020	4.0700-7	6.50316	1	3.07166-1	1.65638-2	8.2828-3	3.0781748-1	0.000	1.059-4
344.5	65.0	0.050	-5.4390-6	6.50791	1	7.67693-1	4.12961-2	2.0672-2	7.692295-1	-2.000	8
344.5	65.0	0.100	-1.6350-5	6.51585	1	1.53439	8.22185-2	4.1202-2	1.53376661	0.000	5.257-4
344.5	65.0	0.200	-6.6430-5	6.53179	1	4.2725-2	1.62961-1	8.1966-2	3.0716104	1.000	7
344.5	65.0	0.305	-1.5022-4	6.54964	1	4.66813	2.46021-1	1.2407-1	4.6782026	0.000	1.574-3
344.5	65.0	0.500	-3.8618-4	6.58013	1	7.9108-2	3.96584-1	2.0083-1	7.6509210	2.000	7
344.5	65.0	0.700	-7.2324-4	6.61215	1	1.06615	5.45414-1	2.7761-1	1.0685070	0.000	2.536-3
344.5	65.0	1.000	-1.3768-3	6.56222	1	1.51741	7.58764-1	3.8921-1	1.5208241	1.000	6
344.5	65.0	1.524	-2.7924-3	6.75004	1	2.29746	1.10458	5.7352-1	2.3027901	1.000	6
344.5	65.0	2.000	-4.2322-3	6.83115	1	2.99716	1.39139	7.3101-1	3.0042980	2.000	6
344.5	65.0	3.048	-7.0957-3	7.01321	1	4.50814	1.94160	1.0449	4.5194992	1.000	6
344.5	65.0	5.000	-7.6851-3	7.36018	1	7.21788	2.72387	1.5286	7.2379635	1.000	6
344.5	65.0	7.000	1.7101-3	7.71918	1	9.86336	3.28493	1.9276	9.8934780	1.000	5
344.5	65.0	10.000	4.1764-2	8.25270	1	1.36076	3.82489	2.3796	1.3654690	2.000	5
344.5	65.0	20.000	4.1203-1	9.90935	1	2.45701	4.45996	3.1930	2.4688327	2.000	4
344.5	65.0	30.480	1.1183	1.14275	2	3.43174	4.57272	3.5701	3.4530054	2.000	4
344.5	65.0	50.000	3.0037	1.38232	2	4.95989	4.59446	3.8841	5.0031025	2.000	4
344.5	65.0	70.000	5.4320	1.58995	2	6.28323	4.59534	4.0352	6.3537655	2.000	4
344.5	65.0	90.000	8.1975	1.77255	2	7.46694	4.59538	4.1239	7.5489240	2.000	4
344.5	55.0	110.000	1.1212	1.93721	2	8.49629	4.59538	4.1831	8.6333275	2.000	4
344.5	65.0	225.000	3.1511	2.68419	2	1.32568	4.59538	4.3346	1.3651226	3.000	4
344.5	65.0	350.000	5.7218	3.29314	2	1.71376	4.59538	4.3965	1.7894632	3.000	4
344.5	65.0	475.000	8.5357	3.79117	2	2.03116	4.59538	4.4298	2.1497322	3.000	4
344.5	100.0	0.010	-1.3500-6	1.00010	2	9.96739-2	5.37786-3	2.6902-3	1.0017442-1	0.000	3.449-5
344.5	100.0	0.020	-3.8530-6	1.00020	2	1.99347-1	1.07472-2	5.3698-3	2.0034898-1	1.000	8
344.5	100.0	0.050	5.1800-7	1.00051	2	4.98178-1	2.68001-2	1.3414-2	5.0068340-1	0.000	1.718-4
344.5	100.0	0.100	-9.5600-6	1.00102	2	9.96165-1	5.33763-2	2.6746-2	1.0011804	1.000	7
344.5	100.0	0.200	-2.9280-5	1.00206	2	1.99124	1.05866-1	5.3249-2	2.0012984	1.000	7
344.5	100.0	0.305	-6.4360-5	1.00316	2	3.03495	1.59946-1	8.0665-2	3.0503165	2.000	7
344.5	100.0	0.500	-1.5861-4	1.00521	2	4.97012	2.58177-1	1.3073-1	4.9954039	4.000	7
344.5	100.0	0.700	-2.9949-4	1.00735	2	6.95072	3.55550-1	1.8097-1	6.9862675	3.000	7
344.5	100.0	1.000	-5.7910-4	1.01059	2	9.91360	4.95627-1	2.5423-1	9.93646880	5.000	7
344.5	100.0	1.524	-1.1865-3	1.01639	2	1.50651	7.24006-1	3.7591-1	1.5143847	1.000	6
344.5	100.0	2.000	-1.7903-3	1.02179	2	1.97184	9.14751-1	4.8058-1	1.9822666	1.000	6
344.5	100.0	3.048	-2.9959-3	1.02403	2	2.98739	1.28454	6.9131-1	3.0036122	1.000	6
344.5	100.0	5.000	-2.9961-3	1.05782	2	4.84569	1.82101	1.0218	4.8733032	1.000	6
344.5	100.0	7.000	1.9882-3	1.08306	2	6.70532	2.21522	1.3004	6.7453930	1.000	5
344.5	100.0	10.000	2.3326-2	1.12163	2	9.41237	2.60530	1.6228	9.4726035	1.000	5
344.5	100.0	20.000	2.3766-1	1.24834	2	1.77950	3.08763	2.2208	1.7934189	2.000	5
344.5	100.0	30.480	6.8491-1	1.37174	2	2.57174	3.17628	2.5029	2.5956685	2.000	5
344.5	100.0	50.000	1.9861	1.57652	2	3.87800	3.19786	2.7350	3.9245727	2.000	5
344.5	100.0	70.000	3.7796	1.76107	2	5.05422	3.19865	2.8438	5.1285670	2.000	5
344.5	100.0	90.000	5.9138	1.92722	2	6.11309	3.19568	2.9060	6.2192100	2.000	5
344.5	100.0	110.000	8.3129	2.07938	2	7.08281	3.19368	2.9467	7.2242385	2.000	4
344.5	100.0	225.000	2.5467	2.78734	2	4.22284	3.19968	3.0469	1.1994176	3.000	4
344.5	100.0	350.000	4.8187	3.37669	2	1.53505	3.19568	3.0857	1.6112097	3.000	4
344.5	100.0	475.000	7.3718	3.86307	2	1.84502	3.19568	3.1060	1.9641783	3.000	4

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	200.0	0.010	7.4000-7	2.00005	2	7.2696-4	4.93271-2	2.56196-3	5.0330610-2	0.000	1.733-5
344.5	200.0	0.020	1.1680-6	2.00010	2	1.4499-3	9.86542-2	5.31991-3	1.0066130-1	0.000	3.463-5
344.5	200.0	0.050	1.3518-5	2.00025	2	3.5952-3	2.46571-1	1.32677-2	6.5445-3	0.000	8.635-5
344.5	200.0	0.100	-1.9470-5	2.00050	2	7.0772-3	4.93335-1	2.64297-2	5.037195-1	0.000-8	1.721-4
344.5	200.0	0.200	7.6300-6	2.00102	2	1.3751-2	9.86287-1	5.24415-2	1.0063768	0.000	3.414-4
344.5	200.0	0.305	-4.9000-7	2.00156	2	2.0266-2	1.50390	7.92610-2	1.5345555	1.000-7	5.163-4
344.5	200.0	0.500	-1.9180-5	2.00258	2	3.1347-2	2.46476	1.78034-1	2.5150618	1.000-7	8.336-4
344.5	200.0	0.700	-1.0116-4	2.00364	2	4.4123-2	3.44996	1.76458-1	3.5204526	1.000-7	1.149-3
344.5	200.0	1.000	-1.3860-4	2.00526	2	5.3012-2	4.92621	2.46257-1	5.0270650	2.000-7	1.603-3
344.5	200.0	1.524	-2.7550-4	2.00816	2	6.6159-2	7.50180	3.60439-1	7.6559180	3.000-7	2.347-3
344.5	200.0	2.000	-4.0550-4	2.01087	2	7.0278-2	9.83789	4.56198-1	2.3967-1	3.000-7	2.971-3
344.5	200.0	3.048	-6.5650-4	2.01705	2	5.5831-2	1.49690	6.43036-1	1.0040645	1.000-6	4.191-3
344.5	200.0	5.000	-3.9870-4	2.02923	2	-4.2684-2	2.44793	9.17588-1	2.4994134	1.000-6	5.992-3
344.5	200.0	7.000	1.3378-3	2.04237	2	-2.1726-1	3.41584	1.12270	3.4886670	2.000-6	7.332-3
344.5	200.0	10.000	8.2080-3	2.06288	2	-5.7454-1	4.85492	1.32993	4.9605609	3.000-6	8.694-3
344.5	200.0	20.000	7.9613-2	2.13371	2	-2.1446	9.54006	1.59773	9.7620065	8.000-6	1.054-2
344.5	200.0	30.480	2.4172-1	2.20744	2	-3.6466	1.42734	1.55248	1.4628281	1.000-5	1.098-2
344.5	200.0	50.000	7.6870-1	2.33890	2	-7.2242	2.26590	1.66441	2.3289630	2.000-5	1.112-2
344.5	200.0	70.000	1.5771	2.46580	2	-1.0396	3.67471	1.66494	3.1695243	2.000-5	1.110-2
344.5	200.0	90.000	2.6212	2.58589	2	-1.3398	1.84400	1.66497	3.9698038	2.000-5	1.114-2
344.5	200.0	110.000	3.8724	2.70005	2	-1.6252	4.56760	1.66497	4.7353976	4.000-5	1.112-2
344.5	200.0	225.000	1.4171	3.72101	2	-3.0531	8.20755	1.66497	8.6434035	2.000-5	1.108-2
344.5	200.0	350.000	2.9702	4.78108	2	-4.3278	1.14570	1.66497	1.2261714	3.000-5	1.120-2
344.5	200.0	475.000	4.8480	4.21685	2	-5.4172	1.42341	1.66497	1.5471645	3.000-4	1.120-2
344.5	400.0	0.010	-7.7354-5	4.00002	2	3.4130-4	2.38350-2	1.27630-3	2.5847858-2	0.000	8.893-6
344.5	400.0	0.020	-2.0074-5	4.00004	2	6.9320-4	4.73515-2	2.55070-3	5.1402060-2	1.490-7	1.783-5
344.5	400.0	0.050	-1.0435-5	4.00012	2	1.7215-3	1.18283-1	6.36157-3	1.2841735-1	1.500-7	4.422-5
344.5	400.0	0.100	3.8400-6	4.00024	2	3.3955-3	2.36502-1	1.26730-2	2.5677686-1	1.500-7	8.794-5
344.5	400.0	0.200	-8.2090-5	4.00040	2	6.4856-3	4.73196-1	2.21481-2	5.1373325-1	1.400-7	1.744-4
344.5	400.0	0.305	2.5550-5	4.00075	2	9.7207-3	7.21234-1	3.80132-2	7.8308910-1	1.900-7	2.636-4
344.5	400.0	0.500	-4.3180-5	4.00124	2	1.5031-2	1.18244	6.14165-2	1.2838598	1.000-7	4.256-4
344.5	400.0	0.700	-2.5990-5	4.00175	2	1.5730-2	1.55519	8.46607-2	1.7972163	1.000-7	5.865-4
344.5	400.0	1.000	-4.0100-5	4.00252	2	2.5438-2	2.36426	1.18183-1	2.5672179	2.000-7	8.189-4
344.5	400.0	1.524	-3.0600-5	4.00392	2	3.1759-2	3.60221	1.73067-1	3.9117339	3.000-7	1.193-3
344.5	400.0	2.000	-8.3100-5	4.00522	2	3.3737-2	4.72641	2.19145-1	5.1328400	4.000-7	1.519-3
344.5	400.0	3.048	2.5400-5	4.00820	2	2.6784-2	7.19934	3.09199-1	7.8195645	1.000-7	2.143-3
344.5	400.0	5.000	2.5110-4	4.01409	2	-2.0870-2	1.77991	4.41986-1	1.2819130	1.000-6	3.072-3
344.5	400.0	7.000	1.0305-3	4.02047	2	-1.0571-1	1.65026	5.41647-1	1.7934183	1.000-6	3.765-3
344.5	400.0	10.000	3.6750-3	4.03050	2	-2.8041-1	2.35386	6.42953-1	2.5591749	2.000-6	4.473-3
344.5	400.0	20.000	2.7685-2	4.06571	2	-1.0610	4.68233	7.75739-1	5.0983255	4.000-6	5.444-3
344.5	400.0	30.480	8.1735-2	4.10328	2	-1.9792	7.09427	8.03641-1	7.7368740	1.000-6	5.683-3
344.5	400.0	50.000	2.6304-1	4.17252	2	-3.7057	1.15113	8.09923-1	1.2591573	2.000	5.750-3
344.5	400.0	70.000	5.5504-1	4.24200	2	-5.4425	1.59394	8.10213-1	1.7488402	2.000	5.750-3
344.5	400.0	90.000	9.5033-1	4.31001	2	-7.1427	2.02737	8.10226-1	2.2311260	2.000	5.740-3
344.5	400.0	110.000	1.4449	4.37662	2	-8.8079	2.55186	8.10226-1	2.7064047	2.000	5.730-3
344.5	400.0	225.000	6.0537	4.73542	2	-1.7778	8.10226-1	8.10226-1	5.3195995	-2.000-5	5.730-3
344.5	400.0	350.000	1.4056	5.08632	2	-2.6550	6.97478	8.10226-1	7.9698245	2.000-5	5.760-3
344.5	400.0	475.000	2.4731	5.40466	2	-3.44509	9.00360	8.10226-1	1.0465401	3.000	5.700-3

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
344.5	900.0	0.010	-3.8774-5	9.00000	2	1.1571-4	7.96626-3	4.28211-4	1.2785208-2	0.000	4.402-6
344.5	900.0	0.020	2.4366-4	9.00001	2	2.4078-4	1.56776-2	8.55787-4	2.5412368-2	7.920-7	9.534-6
344.5	900.0	0.050	2.8768-4	9.00004	2	5.8688-4	3.94489-2	2.13438-3	6.3688560-2	1.004-6	2.286-5
344.5	900.0	0.100	-3.0883-4	9.00008	2	1.1295-3	7.95989-2	4.25202-3	1.2781273-1	2.180-6	4.587-5
344.5	900.0	0.200	1.8237-4	9.00016	2	2.2178-3	1.58560-1	8.43784-3	2.5522981-1	2.670-6	8.924-5
344.5	900.0	0.305	4.8280-5	9.00025	2	3.2522-3	2.41983-1	1.27547-2	3.8933759-1	2.720-6	1.337-4
344.5	900.0	0.500	-1.2954-4	9.00041	2	5.0408-3	3.96847-1	2.06083-2	6.3835760-1	2.730-6	2.143-4
344.5	900.0	0.700	3.4325-4	9.00058	2	6.6319-3	5.55153-1	2.84094-2	8.9343665-1	2.910-6	2.944-4
344.5	900.0	1.000	-1.5100-5	9.00084	2	8.5364-3	7.93440-1	3.96614-2	1.2765761	2.900-6	4.100-4
344.5	900.0	1.524	-2.4290-4	9.00131	2	1.0650-2	1.20927	5.80880-2	1.9455804	2.900-6	5.992-4
344.5	900.0	2.000	-1.8200-5	9.00175	2	1.1322-2	1.58662	7.35623-2	2.5530710	3.000-6	7.582-4
344.5	900.0	3.048	8.1200-5	9.00275	2	8.9837-3	2.41753	1.03818-1	3.8907065	2.900-6	1.069-3
344.5	900.0	5.000	1.2600-4	9.00473	2	-7.0482-3	3.96458	1.48474-1	6.3820290	3.200-6	1.532-3
344.5	900.0	7.000	1.0361-3	9.00688	2	-3.4560-2	5.54802	1.82031-1	8.9338920	2.900-6	1.877-3
344.5	900.0	10.000	2.6630-3	9.01026	2	-9.4530-2	7.92114	2.16199-1	1.2760997	2.000-6	2.229-3
344.5	900.0	20.000	1.2585-2	9.02219	2	-3.5910-1	1.58121	2.61168-1	2.5510951	3.000-6	2.717-3
344.5	900.0	30.480	3.4484-2	9.03502	2	-6.7261-1	2.40468	2.70694-1	3.8859316	2.000-6	2.835-3
344.5	900.0	50.000	1.0368-1	9.05892	2	-1.2684	3.92921	2.72862-1	6.3686605	3.000-6	2.875-3
344.5	900.0	70.000	2.1542-1	9.08323	2	-1.8762	5.47867	2.72964-1	8.9076035	6.000-6	2.874-3
344.5	900.0	90.000	3.6748-1	9.10735	2	-2.4791	7.01565	2.72968-1	1.1441763	2	0.000
344.5	900.0	110.000	5.5986-1	9.13127	2	-3.0772	8.54029	2.72968-1	1.3971199	2	0.000
344.5	900.0	225.000	2.4359	9.26520	2	-6.4255	1.70758	2.72968-1	2.8427270	2	0.000
344.5	900.0	350.000	5.9311	9.40416	2	-9.8992	2.59311	2.72968-1	4.3980176	2	0.000
344.5	900.0	475.000	1.0898	9.53671	2	-1.3213	3.43790	2.72968-1	5.9379765	2	1.000-5

SURFACE N	Q ₀	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	1.0	0.010	-7.2334-4	1.68312	1.9408-1	7.45397	4.86487-1	2.4324-1	7.4539880	0.000	2.809-3
377.2	1.0	0.020	-2.0842-3	2.16056	3.2895-1	1.26572	8.25512-1	4.1292-1	1.2657323	1	4.767-3
377.2	1.0	0.050	-7.3904-3	3.19172	6.1717-1	2.38682	1.55347	7.7778-1	2.3868394	1	8.974-3
377.2	1.0	0.100	-1.7697-2	4.40795	9.4945-1	3.70264	2.40192	1.2042	3.7026841	1	1.388-2
377.2	1.0	0.200	-4.0111-2	6.17104	1.4126	5.59443	3.60727	1.8142	5.5945380	1	2.808-2
377.2	1.0	0.305	-6.4348-2	7.61086	1.7662	7.11829	4.55856	2.3001	7.1184950	1	2.640-2
377.2	1.0	0.500	-1.0957-1	9.76369	2.2557	9.36359	5.92887	3.0068	9.3640135	1	3.437-2
377.2	1.0	0.700	-1.5531-1	1.15989	1	1.12361	7.03184	3.5860	1.1236813	2	4.085-2
377.2	1.0	1.000	-2.2181-1	1.39582	1	1.35842	8.35703	4.2972	1.3585466	2	4.866-2
377.2	1.0	1.524	-3.3037-1	1.74412	1	1.69213	1.01102	5.2712	1.6923521	2	5.911-2
377.2	1.0	2.000	-4.2108-1	2.01910	1	1.94500	1.13283	5.9797	1.9453376	2	6.647-2
377.2	1.0	3.048	-5.9435-1	2.54526	1	2.40402	1.32692	7.1873	2.4046454	2	7.846-2
377.2	1.0	5.000	-8.3373-1	3.36489	1	3.06396	1.54282	8.7308	3.0652799	2	9.238-2
377.2	1.0	7.000	-9.9535-1	4.08186	1	3.60073	1.66810	9.8276	3.6029123	2	1.009-1
377.2	1.0	10.000	-1.1132	5.01483	1	4.25936	1.76860	1.0970	4.2630867	2	1.083-1
377.2	1.0	20.000	-8.4716-1	7.43762	1	5.86179	1.86020	1.2960	5.8723240	2	1.170-1
377.2	1.0	30.480	9.0390-3	9.37026	1	7.10094	1.87193	1.3959	7.1207510	2	1.060-2
377.2	1.0	50.000	2.3441	1.21819	2	8.89390	1.87365	1.4928	8.9354830	2	1.213-1
377.2	1.0	70.000	5.2748	1.44884	2	1.03702	1.87370	1.5476	1.0439059	3	1.320-2
377.2	1.0	90.000	8.5334	1.64831	2	1.16350	1.87370	1.5836	1.1735259	3	1.380-2
377.2	1.0	110.000	1.2022	1.82445	2	1.27576	1.87370	1.6097	1.2892837	3	1.430-2
377.2	1.0	225.000	3.4735	2.60494	2	1.77132	1.87370	1.6859	1.8124105	3	1.560-2
377.2	1.0	350.000	6.2532	3.22969	2	2.17132	1.87370	1.7222	2.2468120	3	1.620-2
377.2	1.0	475.000	9.2527	3.73687	2	2.49455	1.87370	1.7434	2.6129113	3	1.640-2
377.2	2.0	0.010	-2.6713-4	2.41514	1.1794-1	4.52985	2.95642-1	1.4782-1	4.5298662	0.000	1.707-3
377.2	2.0	0.020	-9.1509-4	2.76912	2.1797-1	8.38766	5.47001-1	2.7361-1	8.3876990	2.000-7	3.159-3
377.2	2.0	0.050	-4.0896-3	3.63140	4.5893-1	1.77623	1.15570	5.7863-1	1.7762466	1	6.673-3
377.2	2.0	0.100	-1.1377-2	4.73603	7.6072-1	2.97131	1.92630	9.6570-1	2.9713559	1	4.000-6
377.2	2.0	0.200	-2.9045-2	6.40950	1.2002	4.76681	3.07019	1.5442	4.7669248	1	1.800-5
377.2	2.0	0.305	-4.9325-2	7.80546	1.5429	6.24424	3.99248	2.0146	6.2444450	1	2.311-2
377.2	2.0	0.500	-8.8648-2	9.91613	2.0228	8.44554	5.33590	2.7061	8.4459625	1	9.800-5
377.2	2.0	0.700	-1.2843-1	1.17275	1	1.02937	6.42454	3.2764	1.0294438	2	1.700-4
377.2	2.0	1.000	-1.8975-1	1.40853	1	1.26204	7.73759	3.9788	1.2621619	2	3.100-4
377.2	2.0	1.524	-2.8959-1	1.75270	1	1.59370	9.48007	4.9428	1.5939301	2	5.900-4
377.2	2.0	2.000	-3.7376-1	2.02551	1	1.84551	1.06930	5.6448	1.8458457	2	8.700-4
377.2	2.0	3.048	-5.3528-1	2.55114	1	2.30319	1.26282	6.8414	2.3038197	2	1.540-3
377.2	2.0	5.000	-7.5805-1	3.36934	1	3.1642	1.47834	8.3691	2.9633019	2	2.760-3
377.2	2.0	7.000	-9.0635-1	4.08953	1	3.49816	1.60349	9.4533	3.4500349	2	3.880-3
377.2	2.0	10.000	-1.0080	5.01782	1	4.15631	1.70392	1.0580	4.1600416	2	5.290-3
377.2	2.0	20.000	-7.0303-1	7.43964	1	5.75810	1.79548	1.2533	5.7686350	2	8.120-3
377.2	2.0	30.480	1.8316-1	9.37186	1	6.99698	1.80721	1.3508	7.0167955	2	9.690-3
377.2	2.0	50.000	2.5617	1.21831	2	8.78970	1.80892	1.4447	8.8312920	2	1.118-2
377.2	2.0	70.000	5.5285	1.44994	2	1.02659	1.80897	1.4937	1.0334744	3	1.200-2
377.2	2.0	90.000	8.8184	1.64840	2	1.15306	1.80897	1.5324	1.1630863	3	1.260-2
377.2	2.0	110.000	1.2334	1.82453	2	1.26532	1.80897	1.5574	1.2788385	3	1.300-2
377.2	2.0	225.000	3.5175	2.60500	2	1.76271	1.80897	1.6304	1.8019496	3	1.410-2
377.2	2.0	350.000	6.3079	3.22973	2	2.16085	1.80897	1.6651	2.2363436	3	1.460-2
377.2	2.0	475.000	9.3167	3.73691	2	2.48408	1.80897	1.6853	2.6024389	3	1.480-2

SURFACE N	Q _o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	4.0	0.010	-7.7008-5	4.22290	6.3328-2	2.43221	1.58739-1	7.9369-2	2.4322364	0.000	9.167-4
377.2	4.0	0.020	-2.9248-4	4.43486	1.2322-1	4.74226	3.09252-1	1.5469-1	4.7423100	0.000	1.786-3
377.2	4.0	0.050	-1.5929-3	5.01867	2.8634-1	1.10891	7.21346-1	3.6115-1	1.1089322	0.000	4.166-3
377.2	4.0	0.100	-5.2885-3	5.86770	1.930-1	2.02747	1.31363	6.5851-1	2.0275147	2.000-6	7.589-3
377.2	4.0	0.200	-1.6048-2	7.28570	8.9043-1	3.54862	2.28248	1.1482	3.5487277	1.000-6	1.319-2
377.2	4.0	0.305	-2.9919-2	8.53961	1.1982	4.87566	3.11087	1.5699	4.8758696	2.000-5	1.799-2
377.2	4.0	0.500	-5.9100-2	1.05037	1.16447	6.92407	1.36089	2.2116	6.9244885	1.5600-5	2.524-2
377.2	4.0	0.700	-9.1124-2	1.22284	1.9908	8.68373	5.39734	2.7525	8.6844250	1.060-4	3.127-2
377.2	4.0	1.000	-1.4030-1	1.48856	2.3773	1.09301	6.66502	3.4274	1.0931308	2.000-4	3.870-2
377.2	4.0	1.524	-2.2436-1	1.78660	2.8084	1.41689	8.36558	4.3625	1.4171126	4.000-4	5.882-2
377.2	4.0	2.000	-2.9668-1	2.05590	3.0298	1.66454	9.55955	5.0471	1.6648796	2.6300-4	5.575-2
377.2	4.0	3.048	-4.3713-1	2.57455	3.1681	2.11700	1.14727	6.2171	2.1176325	1.170-3	6.747-2
377.2	4.0	5.000	-6.3057-1	3.38710	1.27420	2.77124	1.36130	7.7114	2.7725652	2.2160-3	8.093-2
377.2	4.0	7.000	-7.5568-1	4.10019	1.8937	3.30510	1.48589	8.7706	3.3072877	2.3140-3	8.913-2
377.2	4.0	10.000	-8.2962-1	5.02975	3.2086-1	3.96133	1.58603	9.8681	3.9650600	2.4350-3	9.618-2
377.2	4.0	20.000	-4.5892-1	7.44768	-5.0384	5.56053	1.67743	1.1752	5.5710785	2.6770-3	1.043-1
377.2	4.0	30.480	4.7721-1	9.37824	-9.7769	6.79835	1.68151	1.2681	6.8181740	2.8120-3	1.064-1
377.2	4.0	50.000	2.9278	1.21880	1.6788	8.59012	1.69086	1.3567	8.6317280	2.9380-3	1.079-1
377.2	4.0	70.000	5.9541	1.45035	-2.2577	1.00658	1.69091	1.4063	1.0134675	3.1010-2	1.086-1
377.2	4.0	90.000	9.2953	1.64876	-2.7537	1.13302	1.69091	1.4386	1.1430476	3.1060-2	1.091-1
377.2	4.0	110.000	1.2857	1.82486	-3.1939	1.24525	1.69091	1.4618	1.2587772	3.1100-2	1.094-1
377.2	4.0	225.000	3.5908	2.60522	-5.1448	1.74258	1.69091	1.5290	1.7818247	3.1190-2	1.104-1
377.2	4.0	350.000	6.3988	3.22991	-6.7066	2.14070	1.69091	1.5607	2.2161897	3.1240-2	1.108-1
377.2	4.0	475.000	9.4226	3.73706	-7.9744	2.46391	1.69091	1.5792	2.5822683	3.1250-2	1.109-1
377.2	8.0	0.010	-2.0040-5	8.11374	3.2316-2	1.24114	8.10041-2	4.0501-2	1.2411879	0.000	4.678-4
377.2	8.0	0.020	-7.9012-5	8.22605	6.4051-2	2.46512	1.60752-1	8.0410-2	2.4652068	0.000	9.284-4
377.2	8.0	0.050	-4.7251-4	8.55493	1.5593-1	6.04052	3.92891-1	1.9670-1	6.0407510	4.000-7	2.269-3
377.2	8.0	0.100	-1.7627-3	9.07907	2.9913-1	1.17111	7.58539-1	3.8022-1	1.1711680	0.000	4.381-3
377.2	8.0	0.200	-6.2472-3	1.00539	5.5467-1	2.21659	1.42419	7.1661-1	2.2167223	1.000-6	8.225-3
377.2	8.0	0.305	-1.2941-2	1.09965	7.8502-1	3.21418	2.04688	1.0330	3.2144056	6.000-6	1.184-2
377.2	8.0	0.500	-2.8964-2	1.25828	1.1463	4.86833	3.05613	1.5498	4.8687662	1.1800-5	1.767-2
377.2	8.0	0.700	-4.8420-2	1.40546	1.4417	6.36992	3.94051	2.0095	6.3706290	1.3900-5	2.280-2
377.2	8.0	1.000	-8.0654-2	1.60570	1.7844	8.36265	5.06489	2.6047	8.3638505	1.8500-5	2.934-2
377.2	8.0	1.524	-1.3968-1	1.91622	2.1803	1.13376	6.62782	3.4558	1.1339866	2.2000-4	3.849-2
377.2	8.0	2.000	-1.9290-1	2.16949	2.3885	1.36667	7.74976	4.0921	1.3670082	2.3300-4	4.511-2
377.2	8.0	3.048	-2.9942-1	2.66612	2.5209	1.79992	9.58164	5.1942	1.8005533	2.6700-4	5.606-2
377.2	8.0	5.000	-4.4679-1	3.45720	2.1060	2.43688	1.16654	6.6141	2.4382018	2.1380-3	6.892-2
377.2	8.0	7.000	-5.3663-1	4.15828	1.2719	2.96173	1.28902	7.6232	2.9639178	2.2080-3	7.671-2
377.2	8.0	10.000	-5.6972-1	5.07720	-2.8304-1	3.61044	1.38799	8.6647	3.6141735	2.2970-3	8.330-2
377.2	8.0	20.000	-1.0711-1	7.47978	-5.6086	5.19946	1.47877	1.0427	5.2100110	2.4790-3	9.081-2
377.2	8.0	30.480	8.9627-1	9.40372	-1.0330	6.43303	1.49045	1.1278	6.4528670	2.5820-3	9.268-2
377.2	8.0	50.000	3.4419	1.22076	-1.7327	8.22105	1.49216	1.2074	8.2626585	2.6740-3	9.375-2
377.2	8.0	70.000	6.5458	1.45200	-2.3108	9.69476	1.49221	1.2512	9.7635960	2.7260-3	9.425-2
377.2	8.0	90.000	9.9536	1.50202	-2.8063	1.09579	1.49221	1.2794	1.1058120	3.7600-3	9.460-2
377.2	8.0	110.000	1.3575	1.82616	-3.2462	1.20793	1.49221	1.2995	1.2214514	3.7800-3	9.480-2
377.2	8.0	225.000	3.6894	2.60612	-5.1961	1.70500	1.49221	1.3573	1.7442442	3.8400-3	9.540-2
377.2	8.0	350.000	6.5201	3.23063	-6.7574	2.10300	1.49221	1.3842	2.1784924	3.8800-3	9.570-2
377.2	8.0	475.000	9.5633	3.73768	-8.0250	2.42614	1.49221	1.3997	2.5445044	3.8800-3	9.580-2

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	15.0	0.010	-5.8930-6	1.50609	1.7321-2	6.65272-1	4.34187-2	2.1709-2	6.6534835-1	0.000	2.508-4
377.2	15.0	0.020	-2.2838-5	1.51217	3.4501-2	1.322783	8.65894-2	4.3312-2	1.32279896	-1.000-7	5.000-4
377.2	15.0	0.050	-1.4104-4	1.53031	8.5175-2	3.299975	2.14618-1	1.0745-1	1.3001476	1.000-7	1.240-3
377.2	15.0	0.100	-5.4862-4	1.56032	1.6687-1	6.533513	4.232338-1	2.1214-1	6.53359540	1.000-7	2.445-3
377.2	15.0	0.200	-2.0895-3	1.61888	3.2056-1	1.28260	8.23699-1	4.1449-1	1.2827789	0.000	4.758-3
377.2	15.0	0.305	-4.6029-3	1.67905	4.6819-1	1.91929	1.22109	6.1630-1	1.9195854	1.000-6	7.059-3
377.2	15.0	0.500	-1.1266-2	1.78696	7.1319-1	3.04443	1.90746	9.6726-1	3.0449603	1.000-6	1.103-2
377.2	15.0	0.700	-2.0189-2	1.89347	9.2686-1	4.13110	2.54741	1.2990	4.1319152	1.000-5	1.472-2
377.2	15.0	1.000	-3.6345-2	2.04650	1.1885	5.65380	3.40639	1.7518	5.6551165	1.000-5	1.371-2
377.2	15.0	1.524	-6.8900-2	2.29820	1.5093	8.06520	4.67317	2.4363	8.0675550	1.000-5	2.707-2
377.2	15.0	2.000	-1.0049-1	2.51326	1.6862	1.00428	5.62583	2.9707	1.0046346	1.000-4	3.263-2
377.2	15.0	3.048	-1.6746-1	2.95260	1.8031	1.38755	7.24623	3.9290	1.3881911	2.000-4	4.219-2
377.2	15.0	5.000	-2.6210-1	3.68261	1.4203	1.97533	9.16915	5.2028	1.9766659	2.000-4	5.376-2
377.2	15.0	7.000	-3.1403-1	4.34745	1.62893-1	2.47302	1.03301	6.1236	2.4752225	2.000-3	6.092-2
377.2	15.0	10.000	-3.0717-1	5.23332	-8.7024-1	3.09830	1.12837	7.0751	3.1020444	2.000-3	6.704-2
377.2	15.0	20.000	2.3010-1	7.58644	-6.0874	4.65459	1.21715	8.6624	4.6651506	2.000-3	7.368-2
377.2	15.0	30.480	1.2784	9.48859	-1.0756	5.87426	1.22870	9.4061	5.8940960	2.000-3	7.519-2
377.2	15.0	50.000	3.8800	1.22730	-1.7704	7.64982	1.23040	1.0081	7.6914335	2.000-3	7.597-2
377.2	15.0	70.000	7.0259	1.45749	-2.3459	9.11685	1.23045	1.0442	9.1856850	2.000-3	7.628-2
377.2	15.0	90.000	1.0468	1.65503	2.2.8397	1.03757	1.23045	1.0672	1.0475953	3.000-3	7.640-2
377.2	15.0	110.000	1.4119	1.83051	2.3.2784	1.14941	1.23045	1.0834	1.1629333	3.000-3	7.660-2
377.2	15.0	225.000	3.7570	2.60914	2.5.2250	1.64563	1.23045	1.1289	1.6848740	3.000-3	7.710-2
377.2	15.0	350.000	6.5984	3.23303	2.-6.7847	2.04324	1.23045	1.1497	2.1187316	3.000-3	7.700-2
377.2	15.0	475.000	9.6508	3.73973	2.-8.0514	2.36615	1.23045	1.1616	2.4845191	3.000-3	7.710-2
377.2	30.0	0.010	-2.2990-6	3.00305	1.8.6710-3	3.33092-1	2.17375-2	1.0868-2	3.3324235-1	0.000	1.256-4
377.2	30.0	0.020	-6.5590-6	3.00610	1.7297-2	6.65814-1	4.34164-2	2.1716-2	6.6611575-1	0.000	2.509-4
377.2	30.0	0.050	-3.6045-5	3.01526	4.2897-2	1.666194	1.08092-1	5.4117-2	1.6627006	0.000	6.247-4
377.2	30.0	0.100	-1.4160-4	3.03055	8.4653-2	3.31545	2.14711-1	1.0762-1	3.3169928	1.000-7	1.241-3
377.2	30.0	0.200	-5.5211-4	3.06116	1.6481-1	6.59757	4.23625-1	2.1318-1	6.6007085	2.000-7	2.448-3
377.2	30.0	0.305	-1.2505-3	3.09339	1.2.4390-1	1.00085	6.36515-1	3.2126-1	1.0013393	1.000	3.680-3
377.2	30.0	0.500	-3.2009-3	3.15325	1.3.7976-1	1.62496	1.01720	5.1580-1	1.6257925	1.000-6	5.878-3
377.2	30.0	0.700	-5.9758-3	3.21480	5.0319-1	2.25283	1.38693	7.0726-1	2.2540476	1.000-6	8.016-3
377.2	30.0	1.000	-1.1344-2	3.30732	6.6111-1	3.17240	1.90558	9.8004-1	3.1742251	1.000-6	1.102-2
377.2	30.0	1.524	-2.3155-2	3.46858	8.6673-1	4.71821	2.71759	1.4766	4.7212314	1.000-5	1.572-2
377.2	30.0	2.000	-3.5590-2	3.61463	9.8684-1	6.06130	3.36457	1.47766	6.0655330	1.000-5	1.947-2
377.2	30.0	3.048	-6.4160-2	3.93273	1.1.0713	8.83617	4.53760	2.4603	8.8434700	1.000-5	2.532-2
377.2	30.0	5.000	-1.0651-1	4.50656	1.7.7042-1	1.34564	6.04911	3.4335	1.3470785	2.000-4	3.526-2
377.2	30.0	7.000	-1.2527-1	5.06425	1.1.0570-1	1.76305	7.02178	4.1733	1.7653512	2.000-4	4.106-2
377.2	30.0	10.000	-9.5073-2	5.84217	-1.2117	2.31213	7.85830	4.9554	2.3159798	2.000-4	4.616-2
377.2	30.0	20.000	4.2475-1	8.01821	-6.0392	3.75097	8.67505	6.2582	3.7616365	2.000-3	5.173-2
377.2	30.0	30.480	1.4106	9.83695	-1.0503	4.91709	8.78542	6.8467	4.9370363	1.000-3	5.281-2
377.2	30.0	50.000	3.8811	1.25437	-1.7257	6.64316	8.80193	7.3558	6.6848825	2.000-3	5.325-2
377.2	30.0	70.000	6.8984	1.48031	-2.2905	8.08311	8.80241	7.6161	8.1520495	2.000-3	5.334-2
377.2	30.0	90.000	1.0221	1.67511	-2.2.7776	9.32461	8.80242	7.7763	9.4249205	2.000-3	5.344-2
377.2	30.0	110.000	1.3761	1.84865	-3.2114	1.04306	8.80242	7.8871	1.0565917	3.000-3	5.350-2
377.2	30.0	225.000	3.6677	2.62175	-5.1442	1.53573	8.80242	8.1884	1.5750072	3.000-3	5.370-2
377.2	30.0	350.000	6.4626	3.24309	-6.6975	1.93173	8.80242	8.3206	2.0072375	3.000-3	5.360-2
377.2	30.0	475.000	9.4748	3.74832	-7.9606	2.25372	8.80242	8.3947	2.3720899	3.000-3	5.360-2

SURFACE N	Q ₀	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	65.0	0.010	1.1880-6	6.50140	1	4.0005-3	1.53589-1	5.0152-3	1.5391498-1	0.000	5.801-5
377.2	65.0	0.020	-4.2300-7	6.50281	1	7.9821-3	3.07179-1	1.0025-2	3.0783020-1	0.000	1.159-4
377.2	65.0	0.050	-6.6850-6	6.50705	1	1.9817-2	4.99328-2	2.5000-2	7.6934200-1	0.000	2.890-4
377.2	65.0	0.100	-2.8410-5	6.51414	1	3.9193-2	1.53458	4.000-7	1.5378505	1.000-7	5.753-4
377.2	65.0	0.200	-1.1858-4	6.52842	1	7.6579-2	3.06584	0.000	1.96846-2	0.000	1.139-3
377.2	65.0	0.305	-2.7030-4	6.54358	1	1.1377-1	4.66996	0.000-7	3.0724055	1.000-7	1.720-3
377.2	65.0	0.500	-7.0584-4	6.57205	1	1.7840-1	7.63911	1.4248-1	4.6800277	0.000	1.720-3
377.2	65.0	0.700	-1.3356-3	6.50177	1	2.3759-1	4.78066-1	2.4941-1	7.6557545	0.000	2.767-3
377.2	65.0	1.000	-2.5861-3	6.64722	1	3.1562-1	1.06707	3.3483-1	1.0694279	0.000	3.800-3
377.2	65.0	1.524	-5.4544-3	6.72887	1	4.1965-1	9.11582-1	4.6883-1	1.5226284	1.000-6	5.277-3
377.2	65.0	2.000	-8.6049-3	6.80522	1	4.8244-1	1.32243	6.8929-1	2.3067071	1.000-6	7.657-3
377.2	65.0	3.048	-1.6231-2	6.97920	1	5.2858-1	1.66066	8.7681-1	3.0106539	4.000-6	9.620-3
377.2	65.0	5.000	-2.7977-2	7.31755	1	3.5114-1	2.30212	1.2481	4.5324392	9.000-6	1.335-2
377.2	65.0	7.000	-3.1586-2	7.67321	1	-7.3564-2	3.19337	1.8122	7.2654465	3.100-5	1.858-2
377.2	65.0	10.000	-1.1237-2	8.20689	1	-9.7832-1	3.81262	2.2703	9.9367215	1.5400-5	2.219-2
377.2	65.0	20.000	3.0284-1	9.87321	1	-4.6810	4.38522	2.7788	1.3719733	2.1000-4	4.558-2
377.2	65.0	30.480	9.6346-1	1.13981	2	-8.4240	5.00264	3.6617	2.4803676	2.2300-4	2.952-2
377.2	65.0	50.000	2.7812	1.37996	2	-1.4416	5.09519	4.0566	3.4675597	2.2900-4	3.025-2
377.2	65.0	70.000	5.1526	1.58791	2	-1.9615	5.10984	4.3802	5.0208955	2.3500-4	3.048-2
377.2	65.0	90.000	7.8682	1.77073	2	-2.4185	5.11027	4.5351	6.3735435	2.3900-4	3.054-2
377.2	65.0	110.000	1.0838	1.93954	2	-2.8305	5.11028	4.6260	7.5700650	2.4100-4	3.054-2
377.2	65.0	225.000	3.0971	2.68301	2	-4.6932	5.11028	4.6867	8.6554790	2.4200-4	3.054-2
377.2	65.0	350.000	5.8462	3.29219	2	-6.2222	5.11028	4.8422	1.3676419	3.4000-4	3.050-2
377.2	65.0	475.000	8.4451	3.79035	2	-7.4676	5.11028	4.9057	1.7921303	3.4000-4	3.050-2
377.2	100.0	0.010	-1.3500-6	1.00009	2	2.5944-3	2.03392	4.9399	2.1524857	3.3000-4	3.040-2
377.2	100.0	0.020	-2.5040-6	1.00018	2	5.1798-3	9.96739-2	3.2525-3	1.0017442-1	0.000	3.776-5
377.2	100.0	0.050	5.1800-7	1.00045	2	1.2861-2	1.99284-1	6.4981-3	2.0028557-1	1.000-8	7.544-5
377.2	100.0	0.100	-1.5960-5	1.00091	2	2.5434-2	4.98178-1	1.6223-2	5.0068340-1	0.000	1.881-4
377.2	100.0	0.200	-4.8500-5	1.00184	2	4.9742-2	9.96229-1	3.2337-2	1.0012439	0.000	3.744-4
377.2	100.0	0.305	-1.1571-4	1.00283	2	7.3946-2	1.99143	6.4345-2	2.0014886	1.000-7	7.423-4
377.2	100.0	0.500	-3.0013-4	1.00468	2	1.1608-1	3.03546	9.7423-2	3.0508238	1.000-7	1.121-3
377.2	100.0	0.700	-5.6383-4	1.00663	2	1.5504-1	4.97152	1.5775-1	4.9967992	1.000-7	1.806-3
377.2	100.0	1.000	-1.0902-3	1.00961	2	2.0595-1	6.95334	2.1815-1	6.9888675	1.000-7	2.483-3
377.2	100.0	1.524	-2.3322-3	1.01499	2	2.7454-1	9.91864	3.0603-1	9.9696975	6.000-7	3.454-3
377.2	100.0	2.000	-3.6819-3	1.02006	2	3.1622-1	1.50763	4.5135-1	1.5155008	1.000-6	5.027-3
377.2	100.0	3.048	-7.0028-3	1.03173	2	3.4715-1	1.97368	5.7579-1	1.9840993	1.000-6	6.332-3
377.2	100.0	5.000	-1.2096-2	1.03486	2	2.2591-1	2.99125	8.2437-1	3.0074489	1.3000-6	8.839-3
377.2	100.0	7.000	-1.3246-2	1.07979	2	-7.2056-2	4.85426	1.2086	4.8818331	1.7000-6	1.242-2
377.2	100.0	10.000	-1.6130-3	1.11827	2	-7.2474-1	6.71937	1.5274	6.7593775	1.600-5	1.495-2
377.2	100.0	20.000	1.8310-1	1.24548	2	-3.5561	9.43470	1.8887	9.4948270	1.3400-5	1.738-2
377.2	100.0	30.480	6.0466-1	1.36930	2	-6.5932	1.78397	2.5341	1.7978753	2.7000-5	2.031-2
377.2	100.0	50.000	1.8662	1.57446	2	-1.1712	2.57784	2.8268	2.6017417	2.1000-4	2.089-2
377.2	100.0	70.000	3.6251	1.75924	2	-1.6332	3.88613	3.0632	3.9326645	2.1200-4	2.104-2
377.2	100.0	90.000	5.7284	1.92555	2	-2.0489	5.06375	3.1732	5.1380535	2.1400-4	2.110-2
377.2	100.0	110.000	8.0995	2.07783	2	-2.4296	6.12365	3.2360	6.2297245	2.1700-4	2.110-2
377.2	100.0	225.000	2.5123	2.78620	2	-4.2005	7.09417	3.2772	7.2355515	2.1500-4	2.106-2
377.2	100.0	350.000	4.7730	3.37576	2	-5.6745	1.16085	3.3784	1.2008076	3.2000-4	2.110-2
377.2	100.0	475.000	7.3164	3.86227	2	-6.8907	1.53658	3.4177	1.6128337	3.2000-4	2.120-2
377.2	100.0						1.84664	3.4382	1.9657831	3.2000-4	2.100-2

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	200.0	0.010	7.4000-7	2.00004	2	4.93271-2	3.21960-3	1.6132-3	5.0330610-2	0.000	1.897-5
377.2	200.0	0.020	1.4088-5	2.00009	2	9.85905-2	6.43371-3	3.2179-3	1.0059884-1	0.000	3.789-5
377.2	200.0	0.050	5.9800-7	2.00022	2	2.46635-3	1.60415-2	8.0258-3	2.5165380-1	1.000-8	9.453-5
377.2	200.0	0.100	-6.5600-6	2.00045	2	4.93271-1	3.19433-2	1.6008-2	5.0330950-1	1.000-8	1.883-4
377.2	200.0	0.200	-5.3100-6	2.00091	2	9.86351-1	6.33311-2	3.1873-2	1.0064393	-1.000-7	3.731-4
377.2	200.0	0.305	-2.6360-5	2.00140	2	1.50403	9.56395-2	4.8265-2	1.5346805	0.000	5.640-4
377.2	200.0	0.500	-7.0930-5	2.00232	2	2.46501	1.54254-1	7.8211-2	2.5153117	0.000	9.090-4
377.2	200.0	0.700	-1.2704-4	2.00329	2	3.45009	2.12262-1	1.0823-1	3.5205774	1.000-7	1.251-3
377.2	200.0	1.000	-2.6810-4	2.00477	2	4.92685	2.95540-1	1.5195-1	5.0276895	2.000-7	1.742-3
377.2	200.0	1.524	-5.4810-4	2.00746	2	7.50314	4.30870-1	2.2457-1	7.6572295	4.000-7	2.540-3
377.2	200.0	2.000	-9.1250-4	2.01000	2	9.84038	5.43447-1	2.8695-1	1.0043082	-1.000-6	3.203-3
377.2	200.0	3.048	-1.6998-3	2.01589	2	1.49741	7.60436-1	4.1226-1	1.5284731	1.000-6	4.486-3
377.2	200.0	5.000	-2.7603-3	2.02771	2	2.44907	1.07177	6.0813-1	2.5005378	1.000-6	6.340-3
377.2	200.0	7.000	-2.6871-3	2.04065	2	3.41779	1.29698	7.7293-1	3.4905723	1.000-6	7.672-3
377.2	200.0	10.000	1.4840-3	2.06107	2	4.85814	1.51563	9.6272-1	4.9637156	1.000-6	8.974-3
377.2	200.0	20.000	6.4040-2	2.13206	2	9.54731	1.77465	1.3111	9.7691100	1.000-5	1.061-2
377.2	200.0	30.480	2.1783-1	2.20594	2	1.42842	1.81949	1.4728	1.4638877	2.000-5	1.096-2
377.2	200.0	50.000	7.3091-1	2.33752	2	2.26753	1.82751	1.6032	2.3305599	2.000-5	1.104-2
377.2	200.0	70.000	1.5263	2.46451	2	3.07681	1.82777	1.6627	3.1715791	2.000-5	1.104-2
377.2	200.0	90.000	2.5580	2.58465	2	3.84250	1.82778	1.6960	3.9722548	2.000-5	1.103-2
377.2	200.0	110.000	3.7976	2.69887	2	4.57044	1.82778	1.7173	4.7381881	2.000-5	1.107-2
377.2	200.0	225.000	1.4038	3.27024	1	8.21179	1.82778	1.7672	8.6475585	2.000-5	1.100-2
377.2	200.0	350.000	2.9517	3.78026	2	1.14621	1.82778	1.7851	1.2266745	3.000	1.100-2
377.2	200.0	475.000	4.8249	4.21612	2	1.42399	1.82778	1.7939	1.5477265	3.000	1.100-2
377.2	400.0	0.010	-2.3464-5	4.00002	2	2.37076-2	1.54366-3	7.9360-4	2.5730370-2	0.000	9.698-6
377.2	400.0	0.020	-4.7020-5	4.00004	2	4.74152-2	3.08472-3	1.5429-3	5.1460775-2	-1.000-9	1.938-5
377.2	400.0	0.050	-3.7381-5	4.00010	2	1.18346-1	7.69153-3	3.8447-3	1.2847605-1	1.000-8	4.827-5
377.2	400.0	0.100	3.0790-5	4.00021	2	2.36438-1	1.53166-2	7.6607-3	2.5671816-1	3.000-8	9.604-5
377.2	400.0	0.200	-2.8200-5	4.00043	2	4.73068-1	3.03696-2	1.5282-2	5.1361585-1	2.000-8	1.905-4
377.2	400.0	0.305	-8.2250-5	4.00067	2	7.21489-1	4.58668-2	2.3147-2	7.8332390-1	5.000-8	2.878-4
377.2	400.0	0.500	-7.0130-5	4.00111	2	1.18231	7.39896-2	3.7518-2	1.2839185	0.000	4.639-4
377.2	400.0	0.700	-5.2960-5	4.00157	2	1.65526	1.01831-1	5.1917-2	1.7972750	0.000	6.386-4
377.2	400.0	1.000	-4.0100-5	4.00229	2	2.36426	1.41820-1	7.2928-2	2.5672179	1.000-7	8.894-4
377.2	400.0	1.524	-1.6560-4	4.00358	2	3.60253	2.06855-1	1.0781-1	3.9120275	1.000-7	1.298-3
377.2	400.0	2.000	-1.9110-4	4.00480	2	4.72667	2.61010-1	1.3782-1	5.1330745	6.000-7	1.638-3
377.2	400.0	3.048	-2.4480-4	4.00764	2	7.19997	3.65556-1	1.9817-1	7.8201515	1.000-7	2.295-3
377.2	400.0	5.000	-3.7130-4	4.01335	2	1.18006	5.16060-1	2.9280-1	1.2820481	1.000-6	3.936-3
377.2	400.0	7.000	-2.6900-5	4.01964	2	1.65050	6.25420-1	3.7274-1	1.7936472	1.000-6	3.936-3
377.2	400.0	10.000	1.9360-3	4.02961	2	2.35427	7.32233-1	4.6522-1	2.5595506	1.000-6	4.612-3
377.2	400.0	20.000	2.3516-2	4.06488	2	4.68329	8.60561-1	6.3659-1	5.0992180	1.000-6	5.469-3
377.2	400.0	30.480	7.5205-2	4.10250	2	7.09577	8.83395-1	7.1687-1	7.7382595	1.000-6	5.654-3
377.2	400.0	50.000	2.5241-1	4.17178	2	1.15137	8.87621-1	7.8189-1	1.2593793	2.000	5.690-3
377.2	400.0	70.000	5.4032-1	4.24128	2	1.59427	8.87763-1	8.1152-1	1.7491426	2.000	5.700-3
377.2	400.0	90.000	9.3151-1	4.30930	2	2.02778	8.87767-1	8.2800-1	2.2315055	2.000	5.690-3
377.2	400.0	110.000	1.4223	4.37592	2	2.45234	8.87767-1	8.3849-1	2.7068557	2.000-5	5.700-3
377.2	400.0	225.000	6.0096	4.73478	2	4.73940	8.87767-1	8.6270-1	5.3204085	-1.000-5	5.680-3
377.2	400.0	350.000	1.3990	5.08573	2	6.97599	8.87767-1	8.7103-1	7.9709365	2.000-5	5.780-3
377.2	400.0	475.000	2.4646	5.40412	2	9.00507	8.87767-1	8.7502-1	1.0466755	3.000	5.700-3

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
377.2	900.0	0.010	-2.7970-4	9.00000	2	1.9791-4	8.15745-3	5.17913-4	1.2905203-2	0.000	4.864-6
377.2	900.0	0.020	1.6335-4	9.00001	2	4.1745-4	1.57413-2	1.03495-3	2.5451735-2	3.991-6	1.358-5
377.2	900.0	0.050	4.6749-5	9.00003	2	1.0256-3	3.96401-2	2.58060-3	6.3807165-2	4.254-6	2.823-5
377.2	900.0	0.100	-6.7900-5	9.00007	2	2.0239-3	7.94077-2	5.13898-3	1.2769375-1	4.290-6	5.205-5
377.2	900.0	0.200	-5.8580-5	9.00014	2	3.9622-3	1.58751-1	1.01897-2	2.5534864-1	4.300-6	9.898-5
377.2	900.0	0.305	-1.1237-4	9.00022	2	5.8922-3	2.42110-1	1.53897-2	3.8941682-1	4.310-6	1.474-4
377.2	900.0	0.500	-4.5081-4	9.00037	2	9.2494-3	3.97102-1	2.48269-2	6.3851610-1	4.350-6	2.351-4
377.2	900.0	0.700	-2.9938-4	9.00053	2	1.2373-2	5.55663-1	3.41708-2	8.9375360-1	4.390-6	3.219-4
377.2	900.0	1.000	-2.5610-4	9.00076	2	1.6460-2	7.93631-1	4.75929-2	1.2766949	4.400-6	4.465-4
377.2	900.0	1.524	-8.2200-5	9.00120	2	2.1993-2	1.20915	6.94261-2	1.9455011	4.400-6	6.493-4
377.2	900.0	2.000	6.2100-5	9.00161	2	2.5373-2	1.58656	8.76114-2	2.5530314	4.400-6	8.186-4
377.2	900.0	3.048	9.0000-7	9.00256	2	2.7895-2	2.41760	1.22733-1	3.8907461	4.400-6	1.146-3
377.2	900.0	5.000	3.6730-4	9.00448	2	1.7824-2	3.96439	1.73339-1	6.3819100	4.800-6	1.621-3
377.2	900.0	7.000	6.3360-4	9.00660	2	-7.4934-3	5.54834	2.10156-1	1.2524-1	4.500-6	1.964-3
377.2	900.0	10.000	1.8560-3	9.00996	2	-6.4578-2	7.92178	2.46176-1	1.2761393	4.000-6	2.301-3
377.2	900.0	20.000	1.1857-2	9.02191	2	-3.3057-1	1.58127	2.89623-1	2.5511308	5.000-6	2.732-3
377.2	900.0	30.480	3.2782-2	9.03476	2	-6.4594-1	2.40481	2.97418-1	3.8860147	6.000-6	2.823-3
377.2	900.0	50.000	1.0172-1	9.05866	2	-1.2425	3.92937	2.98876-1	6.3687555	7.000-6	2.854-3
377.2	900.0	70.000	2.1140-1	9.08298	2	-1.8503	5.47898	2.98926-1	8.9077980	6.000-6	2.848-3
377.2	900.0	90.000	3.6236-1	9.10710	2	-2.4533	7.01604	2.98927-1	1.1442008	1.000-5	2.850-3
377.2	900.0	110.000	5.5388-1	9.13102	2	-3.0514	8.54075	2.98928-1	1.3971484	1.000-5	2.850-3
377.2	900.0	225.000	2.4230	9.26496	2	-6.3959	1.70767	2.98928-1	2.8427864	2.000-5	2.860-3
377.2	900.0	350.000	5.9126	9.40392	2	-9.8738	2.59324	2.98928-1	4.3981000	2.000-5	2.880-3
377.2	900.0	475.000	1.0872	9.53648	2	-1.3187	3.43809	2.98928-1	5.9380890	2	2.880-3

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
404.8	0.0	0.010	-4.6404-3	1.26793	5.8837-1	1.57737	1.120714	6.0357-1	1.5773728	1	6.380-3
404.8	0.0	0.020	-9.2765-3	1.79390	8.3111-1	2.23057	1.70612	8.5338-1	2.2305762	1	9.017-3
404.8	0.0	0.050	-2.3135-2	2.84020	1.3087	3.52549	1.69170	1.3477	3.5255038	1	1.424-2
404.8	0.0	0.100	-4.6048-2	4.02555	1.8374	4.98198	3.79175	1.9014	4.9820193	1	2.007-2
404.8	0.0	0.200	-9.1356-2	5.71788	2.5630	7.03660	5.32335	2.6784	7.0367050	1	2.821-2
404.8	0.0	0.305	-1.3792-1	7.09480	3.1152	8.67582	3.25187	3.2913	8.6760220	1	3.461-2
404.8	0.0	0.500	-2.2203-1	9.15487	3.8809	1.10769	8.22616	4.1769	1.1077372	2	4.379-2
404.8	0.0	0.700	-3.0525-1	1.09185	4.4626	1.30699	9.58971	4.8988	1.3070613	2	5.119-2
404.8	0.0	1.000	-4.2460-1	1.31987	5.1113	1.55587	1.12147	5.7803	1.5559888	2	6.010-2
404.8	0.0	1.524	-6.1764-1	1.65538	5.8553	1.90759	1.33384	6.9787	1.9078087	2	7.193-2
404.8	0.0	2.000	-7.7853-1	1.92980	6.2714	2.17272	1.47945	7.8439	2.1730575	2	8.023-2
404.8	0.0	3.048	-1.0885	2.45230	6.6733	2.65086	1.70720	9.3043	2.6514830	2	9.357-2
404.8	0.0	5.000	-1.5362	3.27566	6.4534	3.33181	1.95234	1.1143	3.3331161	2	1.089-1
404.8	0.0	7.000	-1.8716	4.00097	5.6659	3.88122	2.08911	1.2432	3.8833902	2	7.450-3
404.8	0.0	10.000	-2.2010	4.94590	4.0875	4.55089	2.19396	1.3760	4.5545896	2	9.780-3
404.8	0.0	20.000	-2.4324	7.39251	-1.3796	6.16762	2.28146	1.6048	6.1781225	2	1.432-2
404.8	0.0	30.480	-1.9503	9.33958	-6.1671	7.41213	2.29090	1.7197	7.4319035	2	1.673-2
404.8	0.0	50.000	-2.3326	1.21588	-1.3206	9.20960	2.29205	1.8322	9.2511430	2	1.915-2
404.8	0.0	70.000	5.2075	1.44791	-1.9007	1.06883	2.29207	1.8965	1.0757089	3	2.040-2
404.8	0.0	90.000	8.3525	1.64661	-2.3974	1.19546	2.29207	1.9391	1.2054788	3	2.140-2
404.8	0.0	110.000	8.3525	1.82293	-2.8382	1.30783	2.29207	1.9701	1.3213427	3	2.210-2
404.8	0.0	225.000	2.9501	2.60389	-4.7906	1.80553	2.29207	2.0614	1.8447685	3	2.400-2
404.8	0.0	350.000	5.5978	3.22885	-6.3530	2.20382	2.29207	2.1054	2.2793066	3	2.490-2
404.9	0.0	475.000	8.4845	3.73616	-7.6213	2.52713	2.29207	2.1312	2.6454844	3	2.530-2
404.8	0.5	0.010	-2.1495-3	1.36295	4.0045-1	1.07356	8.21587-1	4.1079-1	1.0735629	1	0.000
404.8	0.5	0.020	-5.3472-3	1.86228	6.3089-1	1.69366	1.29528	6.4791-1	1.6936727	1	1.000-6
404.8	0.5	0.050	-1.6275-2	2.88387	1.0972	2.95800	2.25757	1.1304	2.9580200	1	7.000-6
404.8	0.5	0.100	-3.5853-2	4.05649	1.6202	4.39884	3.34580	1.6778	4.3988788	1	1.194-2
404.8	0.5	0.200	-7.6437-2	5.73370	2.3419	6.44237	4.86912	2.4500	6.4424795	1	1.900-5
404.8	0.5	0.305	-1.1923-1	7.11239	2.8924	8.07657	6.06067	3.0603	8.0767685	1	6.300-5
404.8	0.5	0.500	-1.9782-1	9.16851	3.6566	1.04730	7.76498	3.9429	1.0473508	2	1.190-4
404.8	0.5	0.700	-2.7646-1	1.09299	4.2376	1.24635	9.12682	4.6625	1.2464262	2	2.600-4
404.8	0.5	1.000	-3.9010-1	1.32082	4.8857	1.49502	1.07504	5.5413	1.4951381	2	4.400-4
404.8	0.5	1.524	-5.7509-1	1.66013	5.6293	1.84653	1.28729	6.7356	1.8467579	2	7.300-4
404.8	0.5	2.000	-7.2991-1	1.93045	6.0452	2.11157	1.43284	7.5975	2.1119035	2	1.280-3
404.8	0.5	3.048	-1.0290	2.45281	6.4470	2.58958	1.66054	9.0515	2.5902036	2	1.830-3
404.8	0.5	5.000	-1.4611	3.27604	6.2271	3.27042	1.90563	1.0880	3.2717318	2	3.040-3
404.8	0.5	7.000	-1.7840	4.00129	5.4397	3.81978	2.04240	1.0880	3.8219545	2	5.120-3
404.8	0.5	10.000	-2.0982	4.94715	3.8614	4.48940	2.14724	1.2160	4.4931125	2	6.970-3
404.8	0.5	20.000	-2.2927	7.39642	-1.6055	6.10608	2.23473	1.3477	6.1165915	2	9.190-3
404.8	0.5	30.480	-1.7820	9.33972	-6.3929	7.35057	2.24348	1.5739	7.3703520	2	1.356-2
404.8	0.5	50.000	5.6567-2	1.21589	-1.3432	9.14802	2.24532	1.6871	9.1895730	2	1.585-2
404.8	0.5	70.000	2.5770	1.44792	-1.9233	1.06267	2.24534	1.7975	1.0695508	3	1.808-2
404.8	0.5	90.000	5.4817	1.64662	-2.4200	1.18930	2.24534	1.8605	1.0695508	3	1.940-2
404.8	0.5	110.000	8.6535	1.82293	-2.8608	1.30167	2.24534	1.9022	1.1993201	3	2.030-2
404.8	0.5	225.000	2.9924	2.60389	-4.8132	1.80167	2.24534	1.9324	1.3151836	3	2.090-2
404.8	0.5	350.000	5.6504	3.22885	-6.3756	1.79937	2.24534	2.0215	1.8386080	3	1.405-1
404.9	0.5	475.000	8.5460	3.73616	-7.6439	2.52097	2.24534	2.0643	2.2731457	3	1.423-1
404.9	0.5							2.0894	2.6393231	3	1.436-1

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
404.8	1.0	0.010	-1.0911-3	1.61482	2.8530-1	7.64869	5.85347-1	2.9267-1	7.6487080	0.000	3.094-3
404.8	1.0	0.020	-3.1987-3	2.05379	4.8789-1	1.31003 1	1.90179	5.0111-1	1.3100353 1	1.000-6	5.296-3
404.8	1.0	0.050	-1.1571-2	3.01110	9.2484-1	2.49478 1	1.90349	9.5313-1	2.4947953 1	4.000-6	1.007-2
404.8	1.0	0.100	-2.8031-2	4.14790	1.4318	3.89161 1	2.95848	1.4835	3.8916488 1	1.400-5	1.565-2
404.8	1.0	0.200	-6.4071-2	5.80467	2.1421	5.90297 1	4.45778	2.2431	5.9030805 1	4.800-5	2.360-2
404.8	1.0	0.305	-1.0220-1	7.16492	2.6876	7.52236 1	5.63852	2.8473	7.5225595 1	9.900-5	2.990-2
404.8	1.0	0.500	-1.7641-1	9.20932	3.4474	9.90520 1	7.33309	3.7237	9.9056245 1	2.180-4	3.897-2
404.8	1.0	0.700	-2.5059-1	1.09642	4.0263	1.18882 1	8.68986	4.4394	1.1888970 2	3.700-4	4.629-2
404.8	1.0	1.000	-3.5867-1	1.32365	4.6727	1.43684 2	1.03092 1	5.3141	1.4369650 2	6.400-4	5.512-2
404.8	1.0	1.524	-5.3584-1	1.66239 1	5.4151	1.78776 2	1.24281 1	6.5032	1.7879853 2	1.150-3	6.682-2
404.8	1.0	2.000	-6.8479-1	1.93239 1	5.8305	2.05249 2	1.38819 1	7.3614	2.0528216 2	1.670-3	7.504-2
404.8	1.0	3.048	-9.7336-1	2.45434 1	6.2319	2.53012 2	1.61571 1	8.8084	2.5307439 2	2.800-3	8.824-2
404.8	1.0	5.000	-1.3906	3.27718 1	6.0122	3.21054 2	1.86069 1	1.0626 1	3.2119560 2	4.770-3	1.033-1
404.8	1.0	7.000	-1.7015	4.00222 1	5.2230	3.75985 2	1.99741 1	1.1898 1	3.7620217 2	6.550-3	1.123-1
404.8	1.0	10.000	-2.0012	4.94791 1	3.6470	4.42934 2	2.10223 1	1.3204 1	4.4330533 2	8.680-3	1.201-1
404.8	1.0	20.000	-2.1607	7.39592 1	-1.8194	6.04595 2	2.18972 1	1.5441 1	6.0563685 2	1.281-2	1.292-1
404.8	1.0	30.480	-1.6231	9.34012 1	-6.6065	7.29027 2	2.19916 1	1.6556 1	7.3100615 2	1.503-2	1.321-1
404.8	1.0	50.000	2.5476-1	1.21593 2	-1.3645 1	9.08766 2	2.20030 1	1.7640 1	9.1292240 2	1.718-2	1.344-1
404.8	1.0	70.000	2.8078	1.44795 2	-1.9446 1	1.05663 3	2.20033 1	1.8258 1	1.0635128 3	1.850-2	1.357-1
404.8	1.0	90.000	5.7406	1.64664 2	-2.4413 1	1.18326 3	2.20033 1	1.8665 1	1.1932803 3	1.930-2	1.365-1
404.8	1.0	110.000	8.9377	1.82295 2	-2.8821 1	1.29562 3	2.20033 1	1.8961 1	1.3091422 3	1.990-2	1.371-1
404.8	1.0	225.000	3.0323 1	2.60390 2	-4.8345 1	1.79332 3	2.20033 1	1.9830 1	1.8325627 3	2.160-2	1.387-1
404.8	1.0	350.000	5.7001 1	3.22886 2	-6.3969 1	2.19161 3	2.20033 1	2.0246 1	2.2670987 3	2.230-2	1.395-1
404.9	1.0	475.000	8.6040 1	3.73617 2	-7.6651 1	2.51492 3	2.20033 1	2.0490 1	2.6332751 3	2.270-2	1.399-1
404.8	2.0	0.010	-3.9099-4	2.36804	1.7079-1	4.57869	3.50403-1	1.7520-1	4.5787084	0.000	1.852-3
404.8	2.0	0.020	-1.3576-3	2.68564	3.1782-1	8.53539	6.52653-1	3.2647-1	8.5354290	4.000-7	3.450-3
404.8	2.0	0.050	-6.2051-3	3.47372	6.7703-1	1.82757 1	1.39395	6.9798-1	1.8275861 1	1.000-6	7.366-3
404.8	2.0	0.100	-1.7559-2	4.49300	1.1325	3.08246 1	2.34173	1.1742	3.0825010 1	6.000-6	1.238-2
404.8	2.0	0.200	-4.5478-2	6.05757	1.8022	4.97926 1	3.75547	1.8899	4.9793735 1	2.700-5	1.987-2
404.8	2.0	0.305	-7.7806-2	7.37130	2.3290	6.54325 1	4.89581	2.4724	6.5434495 1	6.100-5	2.594-2
404.8	2.0	0.500	-1.4084-1	9.37078	3.0721	8.87368 1	6.55306	3.3276	8.8741070 1	1.560-4	3.478-2
404.8	2.0	0.700	-2.0452-1	1.11001 1	3.6425	1.08279 2	7.89009	4.0309	1.0828625 2	2.700-4	4.197-2
404.8	2.0	1.000	-3.0399-1	1.33494 1	4.2823	1.32828 2	9.49294	4.8936	1.3284041 2	4.800-4	5.065-2
404.8	2.0	1.524	-4.6625-1	1.67139 1	5.0196	1.67683 2	1.15975 1	6.0690	1.6770565 2	9.200-4	6.222-2
404.8	2.0	2.000	-6.0406-1	1.94014 1	5.4331	1.94033 2	1.30446 1	6.9183	1.9406659 2	1.370-3	7.032-2
404.8	2.0	3.048	-8.7274-1	2.46044 1	5.8333	2.41645 2	1.53125 1	8.3502	2.4170850 2	2.380-3	8.335-2
404.8	2.0	5.000	-1.2620	3.28175 1	5.6139	3.09571 2	1.77578 1	1.0147 1	3.0970329 2	4.160-3	9.819-2
404.8	2.0	7.000	-1.5507	4.00597 1	4.8277	3.64429 2	1.91235 1	1.1401 1	3.6464719 2	5.780-3	1.071-1
404.8	2.0	10.000	-1.8235	4.95094 1	3.2508	4.31328 2	2.01709 1	1.2687 1	4.3169976 2	7.720-3	1.146-1
404.8	2.0	20.000	-1.9184	7.39895 1	-2.2133	5.92912 2	2.10453 1	1.4875 1	5.9396510 2	1.152-2	1.234-1
404.8	2.0	30.480	-1.3312	9.34172 1	-6.9994	7.17327 2	2.11398 1	1.5958 1	7.1930750 2	1.354-2	1.260-1
404.8	2.0	50.000	6.1863-1	1.21605 2	-1.4037 1	8.97043 3	2.11512 1	1.7005 1	9.0120010 2	1.549-2	1.281-1
404.8	2.0	70.000	3.2313	1.44805 2	-1.9837 1	1.04489 3	2.11514 1	1.7599 1	1.0517781 3	1.650-2	1.291-1
404.8	2.0	90.000	6.2158	1.64673 2	-2.4804 1	1.17152 3	2.11514 1	1.7989 1	1.1815375 3	1.720-2	1.299-1
404.8	2.0	110.000	9.4591	1.82303 2	-2.9212 1	1.28387 3	2.11514 1	1.8271 1	1.2973940 3	1.770-2	1.304-1
404.8	2.0	225.000	3.1056 1	2.60396 2	-4.8735 1	1.78156 3	2.11514 1	1.9099 1	1.8207989 3	1.930-2	1.320-1
404.8	2.0	350.000	5.7911 1	3.22891 2	-6.4399 1	2.17984 3	2.11514 1	1.9494 1	2.2553274 3	2.000-2	1.328-1
404.9	2.0	475.000	8.7102 1	3.73621 2	-7.7041 1	2.50314 3	2.11514 1	1.9726 1	2.6214995 3	2.030-2	1.330-1

SURFACE N	Q _o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
404.8	4.0	0.010	-1.1105-4	4.19614	9.1020-2	2.44015	1.86742-1	9.3371-2	2.4401779	0.000	9.871-4
404.8	4.0	0.020	-4.2418-4	4.38384	1.7764-1	4.77114	3.64805-1	1.8248-1	4.7711917	1.000-7	1.928-3
404.8	4.0	0.050	-2.3417-3	4.90578	4.1581-1	1.12300	8.56347-1	4.2878-1	1.1230245	0.000	4.528-3
404.8	4.0	0.100	-7.8930-3	5.67494	7.5887-1	2.06810	1.57015	7.8728-1	1.0202451	0.000-6	8.301-3
404.8	4.0	0.200	-2.4366-2	6.97811	1.3168	3.64962	1.3834	3.6497295	3.6497295	1.000-5	1.453-2
404.8	4.0	0.305	-5.5919-2	8.14468	1.7846	5.03836	3.76109	1.8995	5.0385675	3.100-5	1.992-2
404.8	4.0	0.500	-9.1778-2	9.99056	2.4704	7.18961	5.29077	2.6866	7.1900305	8.300-5	2.805-2
404.8	4.0	0.700	-1.4254-1	1.16281	3.0105	5.04004	6.55674	3.3498	9.0407400	1.590-4	3.481-2
404.8	4.0	1.000	-2.2106-1	1.37915	3.6258	1.14011	8.09826	4.1750	1.1402366	2.3.100-4	4.311-2
404.8	4.0	1.524	-3.5649-1	1.70691	4.3440	1.47965	1.01484	5.3111	1.4798813	2.6.300-4	5.426-2
404.8	4.0	2.000	-4.7422-1	1.97082	4.7500	1.73841	1.15695	6.1371	1.7387473	2.9.800-4	6.213-2
404.8	4.0	3.048	-7.0729-1	2.48470	5.1453	2.20866	1.38094	7.5336	2.2092928	2.1.770-3	7.481-2
404.8	4.0	5.000	-1.0473	3.29998	4.9275	2.88293	1.62367	9.2863	2.8842511	2.3.230-3	8.924-2
404.8	4.0	7.000	-1.2971	4.02091	4.1448	3.42901	1.75961	1.0507	3.4312005	2.4.580-3	9.781-2
404.8	4.0	10.000	-1.5234	4.96303	1.2.5726	4.09598	1.85403	1.1753	4.0997100	2.6.220-3	1.050-1
404.8	4.0	20.000	-1.5084	7.40704	-2.7.8826	5.70918	1.95132	1.3953	5.7197180	2.9.420-3	1.132-1
404.8	4.0	30.480	-8.3742-1	9.34812	-7.8646	6.95224	1.96075	1.4878	6.9720640	2.1.112-2	1.150-1
404.8	4.0	50.000	1.2334	1.21654	1.4699	8.74845	1.96190	1.5857	8.7900410	2.1.272-2	1.172-1
404.8	4.0	70.000	3.9462	1.44846	-2.0497	1.02265	1.96192	1.6407	1.0295316	3.1.360-2	1.181-1
404.8	4.0	90.000	7.0171	1.64710	-2.5463	1.14924	1.96192	1.6766	1.1592590	3.1.420-2	1.187-1
404.8	4.0	110.000	1.0337	1.82336	-2.9989	1.26157	1.96192	1.7026	1.1750928	3.1.470-2	1.193-1
404.8	4.0	225.000	3.2287	2.60419	-4.9390	1.75919	1.96192	1.7780	1.7984340	3.1.590-2	1.204-1
404.8	4.0	350.000	5.9439	3.22909	-6.5012	2.15744	1.96192	1.8138	2.2329336	3.1.640-2	1.209-1
404.9	4.0	475.000	8.8885	3.73636	-7.7694	2.48073	1.96192	1.8347	2.5990890	3.1.660-2	1.211-1
404.8	8.0	0.010	-2.8767-5	8.09985	4.6336-2	1.24221	9.50659-2	4.7532-2	1.2422592	0.000	5.025-4
404.8	8.0	0.020	-1.1362-4	8.19865	9.1936-2	2.46929	1.88801-1	9.4444-2	2.4693815	1.000-7	9.980-4
404.8	8.0	0.050	-6.8278-4	8.48920	2.2450-1	6.08465	4.62410-1	2.3153-1	6.0648850	2.000-7	2.444-3
404.8	8.0	0.100	-2.5661-3	8.95571	4.3257-1	1.17967	8.95339-1	4.4890-1	1.1797292	1.0.000	4.732-3
404.8	8.0	0.200	-9.1970-3	9.83328	8.0795-1	2.24435	1.68837	8.4998-1	2.2444824	1.2.000-6	8.924-3
404.8	8.0	0.305	-1.9234-2	1.06927	1.1524	3.26745	2.34325	1.2295	3.2676700	1.8.000-6	1.288-2
404.8	8.0	0.500	-4.3606-2	1.21577	1.6964	4.97448	3.64783	1.8522	4.9749193	1.2.700-5	2.497-2
404.8	8.0	0.700	-7.3591-2	1.35355	2.1507	6.53133	4.71284	2.4077	6.5320415	1.6.200-5	3.218-2
404.8	8.0	1.000	-1.2386-1	1.54338	2.6903	8.60287	6.06508	3.1270	8.6040680	1.1.250-4	4.224-2
404.8	8.0	1.524	-2.1734-1	1.84214	3.3449	1.16978	7.93379	4.1522	1.1700058	2.3.000-4	4.947-2
404.8	8.0	2.000	-3.0295-1	2.08903	3.7248	1.41185	9.26319	4.9147	1.4121855	2.5.000-4	6.131-2
404.8	8.0	3.048	-4.7888-1	2.57947	4.1019	1.86063	1.14008	6.2228	1.8612637	2.1.000-3	7.491-2
404.8	8.0	5.000	-7.4102-1	3.37190	3.8902	2.51600	1.37600	7.8797	2.5173283	2.1.980-3	8.295-2
404.8	8.0	7.000	-9.3089-1	4.08013	3.1211	3.05245	1.50952	9.0369	3.0546450	2.2.950-3	8.966-2
404.8	8.0	10.000	-1.0872	5.01112	1.5674	3.71153	1.61270	1.0211	3.7152638	2.4.130-3	9.691-2
404.8	8.0	20.000	-9.1241-1	7.43931	-3.8529	5.31426	1.69937	1.2157	5.3248105	2.6.440-3	9.877-2
404.8	8.0	30.480	-1.2266-1	9.37368	-8.6183	6.55303	1.70878	1.3084	6.5728635	2.7.670-3	1.001-1
404.8	8.0	50.000	2.1175	1.21850	1.5638	8.34544	1.70992	1.3951	8.3870510	2.8.820-3	1.007-1
404.8	8.0	70.000	4.9696	1.45011	-2.1428	9.82148	1.70994	1.4430	9.8903065	2.9.400-3	1.011-1
404.8	8.0	90.000	8.1602	1.64854	-2.2.6389	1.10861	1.70994	1.4739	1.1863013	3.9.800-3	1.011-1
404.8	8.0	110.000	1.1587	1.82466	-3.0792	1.22085	1.70994	1.5960	1.2343734	3.1.010-2	1.021-1
404.8	8.0	225.000	3.4023	2.60509	-5.0302	1.71821	1.70994	1.5997	1.7574597	3.1.300-2	1.021-1
404.8	8.0	350.000	6.1585	3.22981	-6.5920	2.11635	1.70994	1.5894	2.1918424	3.1.130-2	1.025-1
404.9	8.0	475.000	9.1381	3.73697	-7.8599	2.43957	1.70994	1.6067	2.5579309	3.1.150-2	1.028-1

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
404.8	15.0	0.010	-8.2960-6	1.50534	1	2.4821-2	6.65431-1	5.0947-2	6.6550765-1	0.000	2.692-4
404.8	15.0	0.020	-3.2884-5	1.51068	1	4.9461-2	1.32849	1.01576-1	1.3286523	-1.000-7	5.368-4
404.8	15.0	0.050	-2.0253-4	1.52665	1	1.2229-1	3.30375	2.51893-1	3.3041432	0.000	1.331-3
404.8	15.0	0.100	-7.9116-4	1.55307	1	2.4014-1	6.55051	4.97109-1	6.5513305	3.000-7	2.628-3
404.8	15.0	0.200	-3.0277-3	1.60527	1	4.6332-1	1.28828	9.68587-1	1.2884592	1	5.120-3
404.8	15.0	0.305	-6.7080-3	1.65931	1	6.7990-1	1.93148	1.43758	1.9317751	1	7.604-3
404.8	15.0	0.500	-1.6568-2	1.75728	1	1.0434	3.07293	2.24892	3.0734545	1	1.189-2
404.8	15.0	0.700	-2.5926-2	1.85527	1	1.3664	4.18004	3.00620	4.1808514	1	1.591-2
404.8	15.0	1.000	-5.4429-2	1.99798	1	1.7718	5.73711	4.02236	5.7384125	1	2.130-2
404.8	15.0	1.524	-1.0478-1	2.23681	1	2.2950	8.21115	5.51608	8.2134980	1	2.927-2
404.8	15.0	2.000	-1.5469-1	2.44415	1	2.6139	1.02439	6.63248	1.0247441	2	3.525-2
404.8	15.0	3.048	-2.6436-1	2.87460	1	2.9448	1.41828	8.50842	1.4189183	2	4.544-2
404.8	15.0	5.000	-4.3588-1	3.60265	1	2.7503	2.02041	1.06760	2.0217380	2	5.755-2
404.8	15.0	7.000	-5.5840-1	4.27277	1	2.0220	2.52795	1.19387	2.5301422	2	6.480-2
404.8	15.0	10.000	-6.4056-1	5.16914	1	5.2585-1	3.16248	1.29316	3.1662186	2	7.081-2
404.8	15.0	20.000	-3.1288-1	7.54655	1	-4.7822	4.73160	1.37788	4.7421557	2	7.710-2
404.8	15.0	30.480	5.8036-1	9.45893	1	-9.4934	5.95629	1.38718	5.9761225	2	7.844-2
404.8	15.0	50.000	2.9605	1.22506	2	-1.6464	7.73615	1.14831	7.7777630	2	7.926-2
404.8	15.0	70.000	5.9239	1.45561	2	-2.2227	9.20547	1.38833	9.2743005	2	7.963-2
404.8	15.0	90.000	9.2088	1.65337	2	-2.7171	1.04658	1.38833	1.0566024	3	7.980-2
404.8	15.0	110.000	1.2719	1.82902	2	-3.1563	1.15852	1.38833	1.1720436	3	8.000-2
404.8	15.0	225.000	3.5529	2.60810	2	-5.1040	1.65503	1.38833	1.6942763	3	8.050-2
404.8	15.0	350.000	6.3404	3.23221	2	-6.6642	1.20527	1.38833	2.1282677	3	8.080-2
404.9	15.0	475.000	9.3467	3.73902	2	-7.9313	1.23757	1.38833	2.4941324	3	8.050-2
404.8	30.0	0.010	-2.4900-6	3.00267	1	1.2423-2	3.33098-1	2.54906-2	3.3324872-1	0.000	1.348-4
404.8	30.0	0.020	-8.4760-6	3.00535	1	2.4790-2	6.65878-1	5.09119-2	6.6617940-1	5.000-8	2.693-4
404.8	30.0	0.050	-5.1637-5	3.01341	1	6.1536-2	1.66245	1.26751-1	1.6632166	0.000	6.703-4
404.8	30.0	0.100	-2.0322-4	3.02688	1	1.2161-1	3.31748	2.51750-1	3.3190186	-1.000-7	1.331-3
404.8	30.0	0.200	-7.9650-4	3.05398	1	2.3747-1	6.60549	4.96592-1	6.6086265	2.000-7	2.626-3
404.8	30.0	0.305	-1.8063-3	3.08272	1	3.5265-1	1.00263	7.45966-1	1.0031204	1	3.947-3
404.8	30.0	0.500	-4.6497-3	3.13653	1	5.5227-1	1.62949	1.19149	1.6303282	1	6.301-3
404.8	30.0	0.700	-8.7261-3	3.19245	1	7.3655-1	2.26125	1.62359	2.2624622	1	8.588-3
404.8	30.0	1.000	-1.6695-2	3.27742	1	9.7775-1	3.18825	2.22844	3.1900696	1	1.179-2
404.8	30.0	1.524	-3.4562-2	3.42822	1	1.3080	4.75026	1.6594	4.7532665	1	1.679-2
404.8	30.0	2.000	-5.3800-2	3.56693	1	1.5214	6.11027	3.91835	6.1144810	1	2.077-2
404.8	30.0	3.048	-1.0000-1	3.87453	1	1.7576	8.92471	5.25858	8.9319765	1	2.793-2
404.8	30.0	5.000	-1.7877-1	4.44147	1	1.6061	1.36135	6.94651	1.3627850	2	3.712-2
404.8	30.0	7.000	-2.3464-1	5.00030	1	9.9776-1	1.78451	7.99802	1.7868045	2	4.290-2
404.8	30.0	10.000	-2.5424-1	5.78485	1	-3.1274-1	2.33981	8.86584	2.3436506	2	4.782-2
404.8	30.0	20.000	1.4324-1	7.98048	1	-5.2183	3.78867	9.64383	3.7993239	2	5.285-2
404.8	30.0	30.480	1.0377	9.80824	1	-9.7211	4.95917	9.73267	4.9791006	2	5.383-2
404.8	30.0	50.000	3.3773	1.25212	2	-1.6496	6.68919	9.74366	6.7308945	2	5.424-2
404.8	30.0	70.000	6.2864	1.47845	2	-2.2153	8.13130	9.74389	8.2022230	2	5.437-2
404.8	30.0	90.000	9.5156	1.67348	2	-2.7029	9.37419	9.74390	9.4744895	2	5.448-2
404.8	30.0	110.000	1.2972	1.84718	2	-3.1371	1.04811	9.74390	1.0616486	3	5.450-2
404.8	30.0	225.000	3.5506	2.62072	2	-5.0710	1.54109	9.74390	1.5803496	3	5.470-2
404.8	30.0	350.000	6.3134	3.24227	2	-6.6248	1.93721	9.74390	2.0127126	3	5.470-2
404.9	30.0	475.000	9.2982	3.74762	2	-7.8882	1.225927	9.74390	2.3776413	3	5.470-2

SURFACE N	α_0	HEIGHT	ΔH	THETA	Δ THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	ΔR	$\Delta R-E$
404.8	65.0	0.010	1.1880-6	6.50123	1	1.53589-1	1.17559-2	5.8789-3	1.5391498-1	0.000	1.226-5
404.8	65.0	0.020	-2.0830-6	6.50247	1	3.07204-1	2.34882-2	1.1750-2	3.0785564-1	1.000-8	1.244-4
404.8	65.0	0.050	-1.0423-5	6.50619	1	7.67769-1	5.85381-2	2.9308-2	7.6939925-1	1.000-8	3.100-4
404.8	65.0	0.100	-4.3390-5	6.51243	1	1.53481	1.16465-1	5.8395-2	1.5380795	0.000	6.169-4
404.8	65.0	0.200	-1.7031-4	6.52506	1	3.06663	2.30536-1	1.1607-1	3.0731940	0.000	1.221-3
404.8	65.0	0.305	-3.9330-4	6.53855	1	4.67184	3.47549-1	1.7555-1	4.6818974	1.000-7	1.842-3
404.8	65.0	0.500	-1.0229-3	6.56406	1	7.64391	5.58776-1	2.8370-1	7.6605495	2.000-7	2.960-3
404.8	65.0	0.700	-1.9432-3	6.59093	1	1.06799	1.06799	3.9153-1	1.0703417	1.000-6	4.061-3
404.8	65.0	1.000	-3.7893-3	6.63246	1	1.52102	1.06198	5.4759-1	1.5244232	1.000-6	5.628-3
404.8	65.0	1.524	-8.0860-3	6.70818	1	2.30527	1.53544	8.0333-1	2.3105789	1.000-6	8.139-3
404.8	65.0	2.000	-1.2914-2	6.78003	1	3.00981	1.92236	1.0200	3.0169179	1.000-6	1.019-2
404.8	65.0	3.048	-2.5175-2	6.94660	1	4.53379	2.64799	1.4459	4.5451059	1.000-5	1.405-2
404.8	65.0	5.000	-4.7599-2	7.27769	1	7.27203	3.63372	2.0844	7.2920120	1.000-5	1.936-2
404.8	65.0	7.000	-6.3394-2	7.63120	1	9.94805	4.29761	2.5949	9.9780050	1.000-5	2.292-2
404.8	65.0	10.000	-6.1097-2	8.16623	1	1.37340	4.88794	3.1511	1.3780869	2.000-4	2.614-2
404.8	65.0	20.000	2.0326-1	9.84263	1	2.47910	5.47359	4.0855	2.4908730	2.000-4	2.963-2
404.8	65.0	30.480	8.2414-1	1.13734	2	3.45942	5.54799	4.4908	3.4806288	2.000-4	3.020-2
404.8	65.0	50.000	2.5832	1.37797	2	4.99355	5.55774	4.8189	5.0367065	2.000-4	3.039-2
404.8	65.0	70.000	4.9050	1.58619	2	6.32057	5.55795	4.9755	6.3910410	2.000-4	3.038-2
404.8	65.0	90.000	7.5773	1.76918	2	7.48681	5.55795	5.0674	7.5887165	2.000-4	3.042-2
404.8	65.0	110.000	1.0508	1.93413	2	8.53803	5.55795	5.1288	8.56749865	2.000-4	3.051-2
404.8	65.0	225.000	3.0461	2.68200	2	1.33042	5.55795	5.2862	1.3698502	3.000-4	3.050-2
404.8	65.0	350.000	5.5800	3.29138	2	1.71877	5.55795	5.3505	1.7944636	3.000-4	3.050-2
404.9	65.0	475.000	8.3659	3.78966	2	2.03633	5.55795	5.3852	2.1548922	3.000-4	3.050-2
404.8	100.0	0.010	-7.7450-6	1.00008	2	3.7145-3	7.62707-3	3.8147-3	1.0023783-1	0.000	4.055-5
404.8	100.0	0.020	-3.8930-6	1.00016	2	7.4195-3	1.52395-2	7.6208-3	2.0034898-1	1.000-8	8.097-5
404.8	100.0	0.050	-5.8800-6	1.00040	2	1.8441-2	3.79868-2	1.9017-2	5.0074680-1	1.000-8	2.018-4
404.8	100.0	0.100	-2.2350-5	1.00080	2	3.6518-2	7.56008-2	3.7908-2	1.0013073	0.000	4.016-4
404.8	100.0	0.200	-6.7740-5	1.00162	2	7.1596-2	1.49723-1	7.5382-2	2.0016789	0.000	7.955-4
404.8	100.0	0.305	-1.6706-4	1.00230	2	1.0675-1	2.25849-1	1.1408-1	3.0513311	2.000-7	1.201-3
404.8	100.0	0.500	-4.3521-4	1.00416	2	1.6842-1	3.63503-1	1.8456-1	4.9981309	1.000-7	1.931-3
404.8	100.0	0.700	-8.1530-4	1.00592	2	2.2627-1	4.99133-1	2.5498-1	6.9913405	3.000-7	2.652-3
404.8	100.0	1.000	-1.6078-3	1.00864	2	3.0347-1	6.92761-1	3.45720-1	9.9747710	3.000-7	3.680-3
404.8	100.0	1.524	-3.4519-3	1.01362	2	4.1263-1	1.00448	5.2552-1	1.5165916	1.000-6	5.337-3
404.8	100.0	2.000	-5.5473-3	1.01838	2	4.8587-1	1.26082	6.6900-1	1.9859067	1.000-6	6.701-3
404.8	100.0	3.048	-1.0897-2	1.02953	2	5.7136-1	1.74623	9.45350-1	3.0111779	1.000-6	9.290-3
404.8	100.0	5.000	-2.0811-2	1.05211	2	5.1105-1	2.41850	1.3872	4.8900015	1.000-5	1.291-2
404.8	100.0	7.000	-2.7674-2	1.07682	2	2.4113-1	2.88222	1.7413	6.7726200	1.000-5	1.340-2
404.8	100.0	10.000	-2.4808-2	1.11530	2	4.0282-1	3.30635	2.1350	9.5154910	1.000-5	1.769-2
404.8	100.0	20.000	1.3406-1	1.24306	2	-3.2650	3.74892	2.8145	1.8018795	2.000-5	2.027-2
404.8	100.0	30.480	5.3560-1	1.36724	2	-6.3242	3.80928	3.1124	2.6071168	2.000-4	2.073-2
404.8	100.0	50.000	1.7611	1.57272	2	-1.1454	3.81760	3.3495	3.9397456	2.000-4	2.079-2
404.8	100.0	70.000	3.4903	1.75768	2	-1.6078	3.81779	3.4593	5.1463165	2.000-4	2.081-2
404.8	100.0	90.000	5.5673	1.92413	2	-2.0240	3.81779	3.4521	6.2388600	2.000-4	2.083-2
404.8	100.0	110.000	7.9143	2.07652	2	-2.4049	3.81779	3.5631	7.2453640	2.000-4	2.087-2
404.8	100.0	225.000	2.4825	2.78523	2	-4.1767	3.81779	3.6643	1.2020075	3.000-4	2.080-2
404.8	100.0	350.000	4.7336	3.37497	2	-5.6511	3.81779	3.7035	1.6141469	3.000-4	2.080-2
404.9	100.0	475.000	7.2686	3.86159	2	-6.8676	3.81779	3.7240	1.9671648	3.000-4	2.080-2

SURFACE N	α_O	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E	
404.8	200.0	0.010	-2.5098-5	2.00003	2	1.8352-3	4.94545-2	3.77525-3	1.8870-3	5.0455535-2	0.000	2.041-5
404.8	200.0	0.020	2.7008-5	2.00007	2	3.6783-2	9.85268-2	7.54353-3	3.7594-3	1.0053638-1	3.000-8	4.066-5
404.8	200.0	0.050	1.3518-5	2.00019	2	9.1325-3	2.46571-1	1.88050-2	9.4104-3	2.5159135-1	3.000-8	1.014-4
404.8	200.0	0.100	-1.9470-5	2.00039	2	1.8078-2	4.93335-1	3.74312-2	1.8775-2	5.0337195-1	6.000-8	2.020-4
404.8	200.0	0.200	-3.1160-5	2.00080	2	3.5455-2	9.86478-1	7.41529-2	3.7340-2	1.0065641	1.000-7	4.000-4
404.8	200.0	0.305	-3.9280-5	2.00124	2	5.2888-2	1.50409	1.11891-1	5.6518-2	1.5347429	1.000-7	6.039-4
404.8	200.0	0.500	-1.0975-4	2.00206	2	8.3490-2	2.46520	1.80195-1	9.1484-2	2.5154990	1.000-7	9.721-4
404.8	200.0	0.700	-2.0473-4	2.00293	2	1.1222-1	3.45047	2.47582-1	1.2647-1	3.5209523	0.000	1.335-3
404.8	200.0	1.000	-3.9770-4	2.00429	2	1.5064-1	4.92748	3.63943-1	1.7734-1	5.0283145	-1.000-7	1.855-3
404.8	200.0	1.524	-8.7260-4	2.00678	2	2.0512-1	7.50473	4.99522-1	2.6135-1	7.6587915	1.000-7	2.695-3
404.8	200.0	2.000	-1.3934-3	2.00916	2	2.4180-1	9.84273	6.27919-1	3.3318-1	1.0045392	0.000	3.388-3
404.8	200.0	3.048	-2.6779-3	2.01477	2	2.8487-1	1.49789	8.72471-1	4.7639-1	1.5289416	1.000-6	4.712-3
404.8	200.0	5.000	-5.0297-3	2.02629	2	2.5412-1	2.45018	1.21528	6.9704-1	2.5016185	1.000-6	6.580-3
404.8	200.0	7.000	-6.5009-3	2.03910	2	1.1411-1	3.41963	1.45556	8.7973-1	3.4923777	3.000-6	7.882-3
404.8	200.0	10.000	-4.7620-3	2.05947	2	-2.2697-1	4.86113	1.67994	1.0859	4.9666456	5.000-6	9.109-3
404.8	200.0	20.000	5.0232-2	2.13066	2	-1.8232	9.55373	1.92450	1.4513	9.7754075	1.300-5	1.054-2
404.8	200.0	30.480	1.9699-1	2.20467	2	-3.6466	1.42936	1.96047	1.6147	1.4648118	2.000-5	1.080-2
404.8	200.0	50.000	6.9828-1	2.33636	2	-6.9347	2.26894	1.96581	1.7442	2.3319389	2.000-5	1.086-2
404.8	200.0	70.000	1.4825	2.46341	2	-1.0110	3.07862	1.96593	1.8030	3.1733486	3.000-5	1.088-2
404.8	200.0	90.000	2.5038	2.58361	2	-1.3115	3.84464	1.96594	1.8358	3.9743554	3.000-5	1.088-2
404.8	200.0	110.000	3.7336	2.69787	2	-1.5972	1.45728	1.96594	1.8568	4.7405793	2.000-5	1.088-2
404.8	200.0	225.000	1.3925	3.26943	2	-3.0261	8.21540	1.96594	1.9061	8.6511005	2.000-5	1.083-2
404.8	200.0	350.000	2.9359	3.77957	2	-4.3014	1.14665	1.96594	1.9238	1.2271027	3.000	1.080-2
404.9	200.0	475.000	4.8051	4.21551	2	-5.3913	1.42447	1.96594	1.9325	1.5482049	3.000-4	1.090-2
404.8	400.0	0.010	3.4810-6	4.00001	2	8.8257-4	2.36438-2	1.81007-3	8.9880-4	2.5671662-2	0.000	1.038-5
404.8	400.0	0.020	6.8710-6	4.00003	2	1.7618-3	4.72877-2	3.61683-3	1.8211-3	5.1343360-2	-2.000-9	2.075-5
404.8	400.0	0.050	-1.0435-5	4.00009	2	4.3764-3	1.18283-1	9.01649-3	4.5035-3	1.2841735-1	0.000	5.175-5
404.8	400.0	0.100	-1.0395-4	4.00019	2	8.6604-3	2.36757-1	1.79479-2	9.0075-3	2.5701167-1	1.000-8	1.031-4
404.8	400.0	0.200	-1.2400-6	4.00038	2	1.7003-2	4.73005-1	3.55583-2	1.7911-2	5.1355715-1	2.000-8	2.041-4
404.8	400.0	0.305	-1.4000-6	4.00059	2	2.5364-2	7.21297-1	5.36591-2	2.7109-2	7.8314780-1	5.000-8	3.081-4
404.8	400.0	0.500	-1.6230-5	4.00099	2	4.0045-2	1.18238	8.64284-2	4.3887-2	1.2838011	0.000	4.959-4
404.8	400.0	0.700	-1.0687-4	4.00140	2	5.3830-2	1.65539	1.18767-1	6.0680-2	1.7973924	0.000	6.814-4
404.8	400.0	1.000	-1.3100-5	4.00205	2	7.2289-2	2.36419	1.65033-1	8.5079-2	2.5671592	1.000-7	9.466-4
404.8	400.0	1.524	-2.1950-4	4.00325	2	9.8456-2	3.60266	2.39781-1	1.2544-1	3.9121448	2.000-7	1.376-3
404.8	400.0	2.000	-2.9910-4	4.00440	2	1.1610-1	4.72692	3.01528-1	1.5999-1	5.1333095	4.000-7	1.731-3
404.8	400.0	3.048	-5.4210-4	4.00710	2	1.3684-1	7.20067	4.19311-1	2.2895-1	7.8207970	3.000-7	2.408-3
404.8	400.0	5.000	-9.9380-4	4.01266	2	1.2197-1	1.18021	5.84951-1	3.3550-1	1.2821831	0.000	3.370-3
404.8	400.0	7.000	-1.0029-3	4.01888	2	5.4011-2	1.65073	7.01561-1	4.2406-1	1.7938586	1.000	4.042-3
404.8	400.0	10.000	1.9700-4	4.02883	2	-1.1258-1	2.35468	8.11109-1	5.2449-1	2.5599264	1.000-6	4.678-3
404.8	400.0	20.000	1.9787-2	4.06417	2	-9.0531-1	4.68416	9.32183-1	7.0393-1	5.1000165	3.000-6	5.423-3
404.8	400.0	30.480	6.9449-2	4.10185	2	-1.8335	7.09710	9.50498-1	7.8490-1	7.7394810	3.000-6	5.568-3
404.8	400.0	50.000	2.4321-1	4.17116	2	-3.5641	1.15158	9.53305-1	8.4928-1	1.2595713	2.000	5.590-3
404.8	400.0	70.000	5.2770-1	4.24067	2	-5.3017	1.59455	9.53374-1	8.7842-1	1.7494015	2.000	5.600-3
404.8	400.0	90.000	9.1550-1	4.30870	2	-7.0025	2.02813	9.53375-1	8.9462-1	2.2318300	2.000	5.580-3
404.8	400.0	110.000	1.4030	4.73533	2	-8.6683	2.45276	9.53375-1	9.0494-1	2.7072391	-1.000-5	5.570-3
404.8	400.0	225.000	5.9722	4.73425	2	-1.7641	4.74014	9.53375-1	9.2873-1	5.3210925	2.000	5.590-3
404.8	400.0	350.000	1.3935	5.08524	2	-2.6415	1.67701	9.53375-1	9.3692-1	7.9718805	2.000	5.580-3
404.9	400.0	475.000	2.4573	5.40366	2	-3.4376	1.90632	9.53375-1	9.4084-1	1.0467905	3.000	5.500-3

SURFACE N	α_0	HEIGHT	ΔH	THETA	Δ THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	ΔR	$\Delta R-E$
404.8	900.0	0.010	-1.9939-4	9.00000	2	8.09372-3	6.07296-4	2.7848-4	1.2865013-2	0.000	5.204-6
404.8	900.0	0.020	2.7310-6	9.00001	2	1.58688-2	1.21348-3	5.7688-4	2.5530763-2	1.220-6	1.154-5
404.8	900.0	0.050	-1.9418-4	9.00003	2	3.98313-2	3.02513-3	1.4970-3	6.3926115-2	1.304-6	2.707-5
404.8	900.0	0.100	2.5336-4	9.00006	2	7.91528-2	6.02178-3	2.9985-3	1.2753537-1	1.930-6	5.309-5
404.8	900.0	0.200	2.6268-4	9.00012	2	1.58496-1	1.19305-2	6.0060-3	2.5519023-1	1.970-6	1.034-4
404.8	900.0	0.305	1.2858-4	9.00019	2	2.41919-1	1.80041-2	9.1025-3	3.8929799-1	2.040-6	1.552-4
404.8	900.0	0.500	2.7211-4	9.00033	2	1.3445-2	2.90003-2	1.4707-2	6.3815955-1	2.030-6	2.486-4
404.8	900.0	0.700	3.4326-4	9.00047	2	5.55153-1	3.98532-2	2.0341-2	8.9343665-1	2.080-6	3.409-4
404.8	900.0	1.000	3.0620-4	9.00069	2	7.93185-1	5.53809-2	2.8524-2	1.2764176	2.100-6	4.730-4
404.8	900.0	1.524	7.8400-5	9.00109	2	1.20902	8.04739-2	4.2084-2	1.9454219	2.100-6	6.865-4
404.8	900.0	2.000	2.2270-4	9.00147	2	1.58643	1.01207-1	5.3683-2	2.5529522	2.200-6	8.630-4
404.8	900.0	3.048	9.0000-7	9.00238	2	2.41760	1.40771-1	7.6858-2	3.8907461	2.200-6	1.201-3
404.8	900.0	5.000	2.0540-4	9.00425	2	3.96452	1.96460-1	1.1267-1	6.3819895	2.400-6	1.680-3
404.8	900.0	7.000	2.3120-4	9.00634	2	5.54866	2.35712-1	1.4247-1	8.9342880	2.500-6	2.015-3
404.8	900.0	10.000	1.6150-3	9.00970	2	7.92197	2.72647-1	1.7631-1	1.2761512	2.000-6	2.332-3
404.8	900.0	20.000	1.1291-2	9.02167	2	1.58131	3.13631-1	2.3692-1	2.5511585	3.000-6	2.707-3
404.8	900.0	30.480	3.0835-2	9.03453	2	2.40497	3.19882-1	2.6435-1	3.8861099	2.000-6	2.777-3
404.8	900.0	50.000	9.9196-2	9.05845	2	3.92956	3.20850-1	2.8618-1	6.3688785	2.000-6	2.798-3
404.8	900.0	70.000	2.0894-1	9.08276	2	5.47918	3.20874-1	2.9607-1	8.9079170	1.000-6	2.798-3
404.8	900.0	90.000	3.5815-1	9.10688	2	7.01637	3.20875-1	3.0156-1	1.1442211	2	2.790-3
404.8	900.0	110.000	5.4864-1	9.13081	2	8.54115	3.20875-1	3.0506-1	1.3971734	2	2.790-3
404.8	900.0	225.000	2.4130	9.26475	2	1.70775	3.20875-1	3.1310-1	2.8428328	2	2.800-3
404.8	900.0	350.000	5.8961	9.40372	2	2.59336	3.20875-1	3.1585-1	4.3981733	2	2.780-3
404.9	900.0	475.000	1.0851	9.53629	2	3.43823	3.20875-1	3.1715-1	5.9381790	2	2.800-3

SURFACE N	α_o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	0.0	0.010	-1.0789-2	1.06401	1.1480	1.87966	1.88540	9.4270-1	1.8796694	1	8.449-3
450.0	0.0	0.020	-2.1565-2	1.50620	1.6216	2.65780	2.66420	1.3327	2.6578123	1	1.194-2
450.0	0.0	0.050	-5.3740-2	2.38850	3.5528	4.19884	4.19996	2.1034	4.1988523	1	1.885-2
450.0	0.0	0.100	-1.0679-1	3.39418	2.9642	5.92822	5.90789	2.9642	5.9282630	1	2.656-2
450.0	0.0	0.200	-2.1126-1	4.84547	4.9929	8.36010	8.27249	4.1667	8.3601965	1	3.729-2
450.0	0.0	0.305	-3.1797-1	6.804424	6.0643	1.02891	1.01005	1.51082	1.0289293	2	4.569-2
450.0	0.0	0.500	-5.0915-1	7.86667	7.5443	1.30952	1.26813	1.64561	1.3095632	2	5.770-2
450.0	0.0	0.700	-6.9655-1	9.46073	8.6681	1.54047	1.47111	7.5424	1.5405412	2	6.731-2
450.0	0.0	1.000	-9.6252-1	1.15666	9.9234	1.82609	1.70868	8.8514	1.8261990	2	7.881-2
450.0	0.0	1.524	-1.3865	1.47898	1.1379	2.23271	2.01028	1.0594	2.2239217	2	9.391-2
450.0	0.0	2.000	-1.7355	1.74218	1.2224	2.51915	2.21065	1.1827	2.5194642	2	1.043-1
450.0	0.0	3.048	-2.4012	2.26306	1.3173	3.04236	2.51075	1.3855	3.0429521	2	1.208-1
450.0	0.0	5.000	-3.3663	3.10366	1.3320	3.76916	2.81060	1.6315	3.7704297	2	1.391-1
450.0	0.0	7.000	-4.1164	3.85224	1.2600	4.34412	2.96419	1.7984	4.3462336	2	1.502-1
450.0	0.0	10.000	-4.9361	4.82865	1.0961	5.03451	3.07108	1.9564	5.0381470	2	1.595-1
450.0	0.0	20.000	-6.2916	7.32964	5.2673	6.67584	3.14552	2.2500	6.6862485	2	1.714-1
450.0	0.0	30.480	-6.6485	9.29047	4.0741-1	7.92906	3.15114	2.3927	7.9487200	2	1.760-1
450.0	0.0	50.000	-6.0574	1.21218	-6.6676	9.73381	3.15160	2.5344	9.7752275	2	1.804-1
450.0	0.0	70.000	-4.5685	1.44481	-1.2483	1.12163	3.15160	2.6170	1.1284991	3	1.829-1
450.0	0.0	90.000	-2.5541	1.64390	-1.7460	1.24851	3.15160	2.6722	1.2585107	3	1.846-1
450.0	0.0	110.000	-1.7916-1	1.82048	-2.1874	1.36104	3.15160	2.7127	1.3745450	3	1.858-1
450.0	0.0	225.000	1.7459	2.60219	-4.1417	1.85923	3.15160	2.8338	1.8984506	3	4.730-2
450.0	0.0	350.000	4.0974	3.22750	-5.7050	2.25774	3.15160	2.8930	2.332083	3	4.900-2
450.0	0.0	475.000	6.7306	3.73501	-6.9738	2.58118	3.15160	2.9281	2.6995115	3	4.950-2
450.0	0.5	0.010	-4.3505-3	1.17564	7.2899-1	1.19357	1.19721	5.9860-1	1.1935732	1	5.365-3
450.0	0.5	0.020	-1.1222-2	1.58702	1.1695	1.91750	1.92176	9.6137-1	1.9175113	1	8.614-3
450.0	0.5	0.050	-3.5371-2	2.44027	2.0701	3.40776	3.40690	1.7063	3.4077829	1	1.500-5
450.0	0.5	0.100	-7.9274-2	3.43081	3.0841	5.11111	5.03911	2.5534	5.1111520	1	5.000-5
450.0	0.5	0.200	-1.7080-1	4.87120	4.6840	7.52465	7.43584	3.7456	7.5247535	1	1.690-4
450.0	0.5	0.305	-2.6722-1	6.06489	5.5508	9.44547	9.25615	4.6816	9.4456675	1	3.310-4
450.0	0.5	0.500	-4.4347-1	7.88254	7.0269	1.22442	1.18301	6.0230	1.2244651	2	7.100-4
450.0	0.5	0.700	-6.1860-1	9.47394	8.1489	1.45499	1.38565	7.1047	1.4550564	2	1.150-3
450.0	0.5	1.000	-8.6942-1	1.15774	9.4027	1.74027	1.62295	8.4081	1.7403886	2	1.210-3
450.0	0.5	1.524	-1.2723	1.47982	1.0957	2.13761	1.92433	1.0143	2.1378222	2	3.330-3
450.0	0.5	2.000	-1.6057	1.74290	1.1702	2.43290	2.17460	1.1369	2.4322227	2	4.660-3
450.0	0.5	3.048	-2.2439	2.26361	1.2650	2.95594	2.42461	1.3384	2.9565469	2	7.450-3
450.0	0.5	5.000	-3.1706	3.10406	1.2797	3.68262	2.72440	1.5825	3.6838984	2	1.190-2
450.0	0.5	7.000	-3.8904	3.85256	1.2078	4.25752	2.87798	1.7477	4.2596443	2	1.564-2
450.0	0.5	10.000	-4.6737	4.82891	1.0459	4.94786	2.98486	1.9136	4.9515139	2	1.982-2
450.0	0.5	20.000	-5.9425	7.32981	4.7452	6.58913	3.05930	2.1926	6.5995625	2	2.758-2
450.0	0.5	30.480	-6.2328	9.29060	-1.1460-1	7.84233	3.06492	2.3322	7.8620130	2	3.160-2
450.0	0.5	50.000	-5.5449	1.21219	-7.1896	9.64706	3.06537	2.4704	9.6885040	2	3.558-2
450.0	0.5	70.000	-3.9756	1.44482	-1.3005	1.11296	3.06538	2.5506	1.1198258	3	3.790-2
450.0	0.5	90.000	-1.8918	1.64390	-1.7982	1.23983	3.06538	2.6041	1.2498369	3	3.940-2
450.0	0.5	110.000	5.4542-1	1.82048	-2.2396	1.35237	3.06538	2.6433	1.3658708	3	4.060-2
450.0	0.5	225.000	1.8468	2.60220	-4.1939	1.85055	3.06538	2.7803	1.8897753	3	4.390-2
450.0	0.5	350.000	4.2224	3.22750	-5.7572	2.24906	3.06538	2.8174	2.3245324	3	4.550-2
450.0	0.5	475.000	6.8762	3.73501	-7.0259	2.57250	3.06538	2.8511	2.6908355	3	4.630-2

SURFACE N	Q ₀	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	1.0	0.010	-2.0182-3	1.46018	4.9652-1	8.12947	8.15426-1	4.0771-1	8.1294830	0.000	3.654-3
450.0	1.0	0.020	-6.1964-3	1.80794	8.6895-1	1.42491	1.42791	7.1434-1	1.4249204	1.000-6	6.400-3
450.0	1.0	0.050	-2.3691-2	2.58939	1.6936	2.78970	2.78798	1.3963	2.7897204	1.000-6	1.250-2
450.0	1.0	0.100	-5.9262-2	3.53843	2.6651	4.42167	4.39969	2.2075	4.4217167	1.000-5	1.975-2
450.0	1.0	0.200	-1.3854-1	4.894759	4.0345	6.72869	6.69524	3.3728	6.7286905	1.000-4	3.012-2
450.0	1.0	0.305	-2.2511-1	6.12641	5.0880	8.67958	8.49286	4.2958	8.6797820	1.000-4	3.831-2
450.0	1.0	0.500	-3.8696-1	7.92997	6.5526	1.14566	1.10468	5.6244	1.1457034	2.500-4	5.006-2
450.0	1.0	0.700	-5.5026-1	9.451344	7.6689	1.37507	1.30631	6.6981	1.3751447	2.500-4	5.006-2
450.0	1.0	1.000	-7.8651-1	1.16098	8.9185	1.65939	1.54279	7.9934	1.6595053	2.1640-3	7.078-2
450.0	1.0	1.524	-1.1692	1.48235	1.0370	2.05585	2.04350	9.7181	2.0560730	2.4920-3	8.555-2
450.0	1.0	2.000	-1.4878	1.74505	1.1213	2.35072	2.34322	1.0937	2.3510461	2.4130-3	9.573-2
450.0	1.0	3.048	-2.0997	2.26527	1.2160	2.87327	2.86322	1.2939	2.8738753	2.6720-3	1.118-1
450.0	1.0	5.000	-2.9902	3.10527	1.2308	3.59956	3.59956	1.5360	3.6008420	2.1090-2	1.296-1
450.0	1.0	7.000	-3.6815	3.85354	1.1589	4.17427	4.17427	1.6997	4.1764097	2.1440-2	1.400-1
450.0	1.0	10.000	-4.4306	4.82969	9.9500	4.86448	2.90324	1.8636	4.8681418	2.1835-2	1.489-1
450.0	1.0	20.000	-5.6181	7.33032	1.44485	6.50557	2.97767	2.1381	6.5160205	2.2956-2	1.598-1
450.0	1.0	30.480	-5.8461	9.29100	-6.0281-1	7.75870	2.98329	2.2748	7.7784045	2.2935-2	1.639-1
450.0	1.0	50.000	-5.0678	1.21222	-7.6776	9.56337	2.98375	2.4096	9.6048390	2.304-2	1.677-1
450.0	1.0	70.000	-3.4234	1.44485	-1.3493	1.10458	2.98375	2.4876	1.1114563	3.3520-2	1.698-1
450.0	1.0	90.000	-1.2747	1.64393	-1.8470	1.23146	2.98375	2.5395	1.2414653	3.3670-2	1.713-1
450.0	1.0	110.000	1.2206	1.82050	-2.2884	1.34399	2.98375	2.5775	1.3574980	3.3770-2	1.722-1
450.0	1.0	225.000	1.9409	2.60221	-4.2427	1.84217	2.98375	2.6506	1.8813989	3.4080-2	1.753-1
450.0	1.0	350.000	4.3389	3.22752	-5.8059	2.24068	2.98375	2.7456	2.3161540	3.4230-2	1.769-1
450.0	1.0	475.000	7.0119	3.73502	-7.0747	2.56411	2.98375	2.7781	2.6824561	3.4310-2	1.778-1
450.0	2.0	0.010	-6.7140-4	2.26542	2.8638-1	4.68885	4.70315-1	2.3515-1	4.6888728	0.000	2.108-3
450.0	2.0	0.020	-2.4075-3	2.50372	5.4159-1	8.88246	8.90034-1	4.4526-1	8.8824995	2.000-7	3.988-3
450.0	2.0	0.050	-1.1641-2	3.11527	1.1868	1.95620	1.95422	9.7879-1	1.9562141	1.000-6	8.761-3
450.0	2.0	0.100	-3.4448-2	3.93960	2.0306	3.37369	3.35412	1.6827	3.3737355	1.000-5	1.505-2
450.0	2.0	0.200	-9.2706-2	5.24200	3.2956	5.55527	5.47486	2.7583	5.5553825	1.600-5	2.459-2
450.0	2.0	0.305	-1.6147-1	6.36654	4.3005	7.36476	7.18963	3.6369	7.3649660	1.1550-4	3.238-2
450.0	2.0	0.500	-2.9613-1	8.11692	5.7217	1.00597	9.66801	4.9225	1.0060180	2.3800-4	4.370-2
450.0	2.0	0.700	-4.3752-1	9.66982	6.8165	1.23095	1.16453	5.9715	1.2310266	2.6900-4	5.287-2
450.0	2.0	1.000	-6.4684-1	1.17382	8.0493	1.51148	1.33785	7.2433	1.5115965	2.1220-3	6.388-2
450.0	2.0	1.524	-9.9187-1	1.49244	1.49244	1.90453	1.89482	8.9419	1.9047541	2.280-3	7.830-2
450.0	2.0	2.000	-1.2826	1.75363	1.0327	2.19770	2.18948	1.0144	2.1980336	2.310-3	8.824-2
450.0	2.0	3.048	-1.8458	2.27188	1.1270	2.71827	2.71941	1.2118	2.7188932	2.560-3	1.039-1
450.0	2.0	5.000	-2.6697	3.11009	1.1417	3.44302	2.49240	1.4500	3.443207	2.9220-3	1.212-1
450.0	2.0	7.000	-3.3088	3.85743	1.0699	4.01702	2.64574	1.6107	4.0191710	2.1233-2	1.312-1
450.0	2.0	10.000	-3.9956	4.83279	9.0618	4.70666	2.75251	1.7709	4.7103501	2.1587-2	1.398-1
450.0	2.0	20.000	-5.0353	7.33237	1.33709	6.34706	2.82691	2.0371	6.3575390	2.232-2	1.497-1
450.0	2.0	30.480	-5.1503	9.29261	-1.4875	7.59991	2.83252	2.1684	7.6196515	2.2558-2	1.534-1
450.0	2.0	50.000	-4.2083	1.21235	-8.5614	9.40435	2.83299	2.2968	9.4458485	2.2886-2	1.568-1
450.0	2.0	70.000	-2.4281	1.44495	-1.4376	1.08867	2.83299	2.3707	1.0955447	3.3070-2	1.585-1
450.0	2.0	90.000	-1.6211-1	1.64402	-1.9353	1.21553	2.83299	2.4197	1.2255461	3.3190-2	1.598-1
450.0	2.0	110.000	2.4384	1.82059	-2.3767	1.32806	2.83299	2.4555	1.3415730	3.3290-2	1.608-1
450.0	2.0	225.000	2.1107	2.60227	-4.3309	1.82623	2.83299	2.5615	1.8654583	3.3550-2	1.638-1
450.0	2.0	350.000	4.5492	3.22756	-5.8941	2.22473	2.83299	2.6128	2.3020265	3.3670-2	1.646-1
450.0	2.0	475.000	7.2570	3.73506	-7.1629	2.54816	2.83299	2.6430	2.6665043	3.3740-2	1.654-1

SURFACE N	Q ₀	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	4.0	0.010	-1.8439-4	4.13909	1.5008-1	2.45725	2.46475-1	1.2323-1	2.4572810	0.000	1.105-3
450.0	4.0	0.020	-7.1312-4	4.27418	2.9475-1	4.83443	4.84395-1	2.4233-1	4.8344835	2.000-7	2.171-3
450.0	4.0	0.050	-4.0576-3	4.65885	7.0055-1	1.15513	1.15369	5.7783-1	1.1551531	0.000	5.170-3
450.0	4.0	0.100	-1.4165-2	5.24599	1.3015	2.16474	2.15074	1.0789	2.1647849	4.000-6	9.642-3
450.0	4.0	0.200	-4.5602-2	6.28319	2.3077	3.90112	3.83812	1.9340	3.9012328	2.200-5	1.722-2
450.0	4.0	0.305	-8.8144-2	7.24794	3.1697	5.45338	5.30904	2.6858	5.4535840	6.400-5	2.386-2
450.0	4.0	0.500	-1.8081-1	8.82520	4.4499	7.88140	7.54164	3.8397	7.8818265	1.790-4	3.398-2
450.0	4.0	0.700	-2.8485-1	1.02715	5.4694	9.97672	9.38307	4.8116	9.9774200	3.610-4	4.242-2
450.0	4.0	1.000	-4.4674-1	1.22387	6.6415	1.26443	1.16016	6.0125	1.2645488	7.000-4	5.269-2
450.0	4.0	1.524	-7.2604-1	1.53211	8.0340	1.64468	1.44858	7.6391	1.6449059	2.1420-3	6.634-2
450.0	4.0	2.000	-9.6830-1	1.78751	8.8537	1.93135	1.64300	8.7999	1.9316901	2.2.170-3	7.581-2
450.0	4.0	3.048	-1.4471	2.29813	9.7836	2.44426	2.193719	1.0711	2.4448852	2.3.850-3	9.072-2
450.0	4.0	5.000	-2.1568	3.12932	9.9292	3.16293	2.23368	1.3017	3.1624229	2.6.710-3	1.071-1
450.0	4.0	7.000	-2.7073	3.87294	9.2144	3.73407	2.38624	1.4567	3.7362416	2.9.210-3	1.164-1
450.0	4.0	10.000	-3.2893	4.84518	7.5820	4.42150	2.49266	1.6103	4.4252134	2.1.204-2	1.241-1
450.0	4.0	20.000	-4.0831	7.34053	1.9006	6.05912	2.56693	1.8617	6.0696330	2.1.719-2	1.829-1
450.0	4.0	30.480	-4.0110	9.29305	-2.9535	7.31086	2.57254	1.9835	7.3306475	2.1.983-2	1.360-1
450.0	4.0	50.000	-2.7985	1.21284	-1.0023	9.11433	2.57299	2.1010	9.1558875	2.2.235-2	1.385-1
450.0	4.0	70.000	-7.9440-1	1.44536	-1.5836	1.05962	2.57300	2.1678	1.0664980	3.2.370-2	1.398-1
450.0	4.0	90.000	1.6651	1.64438	-2.0812	1.18645	2.57300	2.2118	1.1966462	3.2.480-2	1.410-1
450.0	4.0	110.000	4.4388	1.82091	-2.5225	1.29895	2.57300	2.2437	1.3124717	3.2.550-2	1.417-1
450.0	4.0	225.000	2.3897	2.60249	-2.4764	1.79706	2.57300	2.3376	1.8362935	3.2.740-2	1.436-1
450.0	4.0	350.000	4.8950	3.22774	-6.0396	2.19553	2.57300	2.3827	2.2710127	3.2.830-2	1.446-1
450.0	4.0	475.000	7.6599	3.73521	-7.3082	2.51894	2.57300	2.4091	2.6372941	3.2.870-2	1.447-1
450.0	8.0	0.010	-4.7301-5	8.07044	7.6009-2	1.24449	1.24828-1	6.2414-2	1.2445342	0.000	5.594-4
450.0	8.0	0.020	-1.8740-4	8.14055	1.5108-1	2.47819	2.48304-1	1.2422-1	2.4782799	0.000	1.113-3
450.0	8.0	0.050	-1.1376-3	8.34894	3.7090-1	6.11683	6.10859-1	3.0594-1	6.1170605	3.000-7	2.738-3
450.0	8.0	0.100	-4.3399-3	8.69023	7.2025-1	1.19854	1.19042	5.9717-1	1.1985997	0.000	5.334-3
450.0	8.0	0.200	-1.5928-2	9.35297	1.3624	2.30739	2.26758	1.1428	2.3075118	1.5.000-6	1.017-2
450.0	8.0	0.305	-3.3967-2	1.00265	1.9641	3.39105	3.29439	1.6667	3.3912738	1.1.600-5	1.479-2
450.0	8.0	0.500	-7.9008-2	1.12197	2.9318	5.22727	4.98243	2.5366	5.2277030	1.4.800-5	2.238-2
450.0	8.0	0.700	-1.3574-1	1.23896	3.7561	6.92179	6.47143	3.3185	6.9224935	1.1.170-4	2.912-2
450.0	8.0	1.000	-2.3254-1	1.40635	4.7528	9.19111	8.35833	4.3323	9.19222985	1.2.620-4	3.772-2
450.0	8.0	1.524	-4.1511-1	1.68147	5.9955	1.25847	1.09322	5.7660	1.2587017	2.6.100-4	4.962-2
450.0	8.0	2.000	-5.8378-1	1.91707	6.7516	1.52292	1.27258	6.8191	1.5232634	2.1.010-3	5.806-2
450.0	8.0	3.048	-9.3347-1	2.40028	7.6314	2.00828	1.55095	8.5850	2.0089121	2.2.000-3	7.159-2
450.0	8.0	5.000	-1.4702	3.20307	7.7724	2.70413	1.83802	1.0737	2.7054555	2.3.810-3	8.646-2
450.0	8.0	7.000	-1.8891	3.93439	7.0711	3.26426	1.98761	1.2185	3.2664496	2.5.470-3	9.487-2
450.0	8.0	10.000	-2.3181	4.89442	5.4590	3.94305	2.09267	1.3607	3.9467842	2.7.370-3	1.015-1
450.0	8.0	20.000	-2.7605	7.37309	-1.8474-1	5.56969	2.16640	1.5883	5.5802390	2.1.085-2	1.087-1
450.0	8.0	30.480	-2.4252	9.32475	-5.0219	6.81705	2.17199	1.6950	6.8368730	2.1.263-2	1.108-1
450.0	8.0	50.000	-8.3501-1	1.21481	-1.2076	8.61668	2.17244	1.7954	8.6582805	2.1.426-2	1.125-1
450.0	8.0	70.000	1.4807	1.44701	-1.7882	1.00965	2.17245	1.8513	1.0165341	3.1.520-2	1.135-1
450.0	8.0	90.000	4.2089	1.64582	-2.2852	1.13635	2.17245	1.8877	1.1463747	3.1.580-2	1.140-1
450.0	8.0	110.000	7.2228	1.82221	-2.7262	1.24876	2.17245	1.9138	1.2622865	3.1.620-2	1.145-1
450.0	8.0	225.000	2.7775	2.60339	-4.6791	1.74661	2.17245	1.9896	1.7858547	3.1.750-2	1.157-1
450.0	8.0	350.000	5.3750	3.22846	-6.2418	2.14497	2.17245	2.0254	2.2204572	3.1.800-2	1.164-1
450.0	8.0	475.000	8.2189	3.73582	-7.5102	2.46831	2.17245	2.0462	2.45866716	3.1.820-2	1.165-1

SURFACE N	Q _o	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	15.0	0.010	-1.3484-5	1.50376	1	4.0654-2	6.65776-1	6.67810-2	3.3390-2	0.000	2.993-4
450.0	15.0	0.020	-5.4040-5	1.50754	1	8.1079-2	1.32989	1.33248-1	6.6661-2	0.000	5.972-4
450.0	15.0	0.050	-3.3357-4	1.51889	1	2.0083-1	3.31226	3.30772-1	1.6566-1	2.000-7	1.483-3
450.0	15.0	0.100	-1.3092-3	1.53791	1	3.9555-1	6.58336	6.53810-1	3.2797-1	3.000-7	2.931-3
450.0	15.0	0.200	-5.0578-3	1.57631	1	7.6740-1	1.30056	1.27759	6.4393-1	1.000-6	5.727-3
450.0	15.0	0.305	-1.1309-2	1.61718	1	1.1324	1.95810	1.90059	9.6157-1	1.000-6	8.528-3
450.0	15.0	0.500	-2.8342-2	1.69375	1	1.7530	3.13603	2.98328	1.5187	1.200-5	1.338-2
450.0	15.0	0.700	-5.1836-2	1.77341	1	2.3141	4.28965	3.99685	2.0495	2.900-5	1.795-2
450.0	15.0	1.000	-9.5699-2	1.89414	1	3.0323	5.92582	5.35688	2.7769	6.900-5	2.408-2
450.0	15.0	1.524	-1.8777-1	2.10647	1	3.9911	8.54486	7.34315	3.8729	1.870-4	3.311-2
450.0	15.0	2.000	-2.8071-1	2.29891	1	4.6088	1.07049	8.80812	4.7211	3.400-4	3.983-2
450.0	15.0	3.048	-4.8953-1	2.71497	1	5.3659	1.48836	1.12045	6.2069	7.600-4	5.103-2
450.0	15.0	5.000	-8.3366-1	3.44702	1	5.4942	2.12132	1.38157	8.0886	1.640-3	6.379-2
450.0	15.0	7.000	-1.1084	4.13384	1	4.8329	2.64874	1.52234	9.3778	2.540-3	7.104-2
450.0	15.0	10.000	-1.3756	5.05610	1	3.2838	3.30078	1.62321	1.0640	3.620-3	7.672-2
450.0	15.0	20.000	-1.4682	7.48129	1	-2.2332	4.89224	1.69520	1.2608	5.570-3	8.225-2
450.0	15.0	30.480	-8.8273-1	9.41044	1	-7.0206	6.12521	1.70072	1.3491	6.520-3	8.358-2
450.0	15.0	50.000	1.0581	1.22138	2	-1.4025	7.91214	1.70118	1.4291	7.400-3	8.447-2
450.0	15.0	70.000	3.6592	1.45253	2	-1.9804	9.38521	1.70118	1.4723	7.850-3	8.490-2
450.0	15.0	90.000	6.6316	1.65066	2	-2.4757	1.06479	1.70118	1.4998	8.100-3	8.520-2
450.0	15.0	110.000	9.8631	1.82658	2	-2.9155	1.17650	1.70118	1.5194	8.200-3	8.530-2
450.0	15.0	225.000	3.1401	2.60641	2	-4.8651	1.67389	1.70118	1.5748	8.900-3	8.600-2
450.0	15.0	350.000	5.8204	3.22308	2	-6.4262	2.07185	1.70118	1.6004	9.200-3	8.630-2
450.0	15.0	475.000	8.7351	3.73787	2	-7.6938	2.39497	1.70118	1.6151	9.200-3	8.640-2
450.0	30.0	0.010	-3.4490-6	3.00188	1	2.0346-2	3.33130-1	3.34144-2	1.6707-2	0.000	1.498-4
450.0	30.0	0.020	-1.4037-5	3.00377	1	4.0806-2	6.66052-1	6.67346-2	3.3385-2	2.000-8	2.992-4
450.0	30.0	0.050	-8.4169-5	3.00949	1	1.0086-1	1.66353	1.66123-1	8.3203-2	1.000-7	7.449-4
450.0	30.0	0.100	-3.3399-4	3.01913	1	1.9957-1	3.32178	3.29883-1	1.6548-1	1.000-7	1.479-3
450.0	30.0	0.200	-1.3117-3	3.03886	1	3.9055-1	6.62223	6.50426-1	3.2783-1	0.000	2.916-3
450.0	30.0	0.305	-2.9869-3	3.06026	1	5.8174-1	1.00641	9.76538-1	4.9406-1	0.000	4.381-3
450.0	30.0	0.500	-7.7344-3	3.10139	1	9.1505-1	1.63915	1.55806	7.9316-1	2.000-6	6.988-3
450.0	30.0	0.700	-1.4598-2	3.14559	1	1.2282	2.27922	2.12038	1.0873	5.000-6	9.512-3
450.0	30.0	1.000	-2.8156-2	3.21519	1	1.6400	3.22217	2.90402	1.5054	1.200-5	1.303-2
450.0	30.0	1.524	-5.9051-2	3.34465	1	2.2245	4.81895	4.11491	2.1700	3.400-5	1.849-2
450.0	30.0	2.000	-9.3919-2	3.46905	1	2.6237	6.21520	5.06187	2.7134	6.800-5	2.278-2
450.0	30.0	3.048	-1.7674-1	3.75764	1	3.1495	9.11347	6.72361	3.7260	1.680-4	3.036-2
450.0	30.0	5.000	-3.3127-1	4.31623	1	3.2464	1.39431	8.71609	5.1100	4.200-4	3.970-2
450.0	30.0	7.000	-4.6181-1	4.88214	1	2.6999	1.82875	9.87380	6.1124	7.200-4	4.520-2
450.0	30.0	10.000	-5.7801-1	5.68409	1	1.3517	2.39563	1.07493	7.7114	1.100-3	4.957-2
450.0	30.0	20.000	-4.0771-1	7.91881	1	-3.7409	3.86180	1.14081	8.6518	1.860-3	5.360-2
450.0	30.0	30.480	3.1955-1	9.76150	1	-8.3080	5.03952	1.14608	9.3046	2.210-3	5.427-2
450.0	30.0	50.000	2.4198	1.24858	2	-1.5115	6.77602	1.14653	9.8613	2.510-3	5.467-2
450.0	30.0	70.000	5.1308	1.47542	2	-2.0786	8.22168	1.14653	1.0146	2.660-3	5.481-2
450.0	30.0	90.000	8.1890	1.67080	2	-2.5671	9.46686	1.14653	1.0322	2.750-3	5.489-2
450.0	30.0	110.000	1.1492	1.84476	2	-3.0020	1.05754	1.14653	1.0444	3.2800-3	5.490-2
450.0	30.0	225.000	3.3329	2.61904	2	-4.9377	1.55099	1.14653	1.0777	3.520-3	5.520-2
450.0	30.0	350.000	6.0568	3.24093	2	-6.4924	1.94732	1.14653	1.0924	3.000-3	5.500-2
450.0	30.0	475.000	8.9713	3.74647	2	-7.7562	2.26951	1.14653	1.1007	3.000-3	5.510-2

SURFACE N	α	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	65.0	0.010	-8.8600-7	6.50086	1.8	1.53621-1	1.54037-2	7.7078-3	1.5394679-1	0.000	6.920-5
450.0	65.0	0.020	-3.7430-6	6.50174	1.8779-2	3.07230-1	3.07816-2	1.5398-2	3.0788109-1	1.000-8	1.383-4
450.0	65.0	0.050	-1.8732-5	6.50438	1.8779-2	7.66823-1	7.66823-2	3.8401-2	7.6952645-1	1.000-8	3.444-4
450.0	65.0	0.100	-7.0420-5	6.50884	1.92239-2	1.53522	1.52462-1	7.6483-2	1.5384929	0.000	6.846-4
450.0	65.0	0.200	-2.8042-4	6.51800	1.8099-1	3.06831	3.01356-1	1.5189-1	3.0748729	1.000-7	1.353-3
450.0	65.0	0.305	-6.4641-4	6.52800	1.7022-1	4.67569	4.53644-1	2.2951-1	4.6857451	0.000	2.038-3
450.0	65.0	0.500	-1.6871-3	6.54736	1.42711-1	7.65397	7.27360-1	3.7027-1	7.6705915	2.000-7	3.266-3
450.0	65.0	0.700	-3.2175-3	6.56839	1.57517-1	1.06991	9.94879-1	5.1016-1	1.0722580	0.000	4.468-3
450.0	65.0	1.000	-6.2988-2	6.60196	1.77472-1	1.52477	1.37286	7.1172-1	1.5281666	1.000-6	6.166-3
450.0	65.0	1.524	-1.3562-2	6.66590	1.10633	2.31334	1.97084	1.0393	2.3186364	1.000-6	8.856-3
450.0	65.0	2.000	-2.1832-2	6.72911	1.2662	3.02279	2.45200	1.3144	3.0298770	1.000-6	1.103-2
450.0	65.0	3.048	-4.3476-2	6.88216	1.15444	4.55976	3.33310	1.8472	4.5710149	1.200-5	1.501-2
450.0	65.0	5.000	-8.6913-2	7.20202	1.16004	7.32533	4.47404	2.6239	7.3452025	1.5800-5	2.025-2
450.0	65.0	7.000	-1.2589-1	7.55439	1.12598	1.00292	5.19313	3.2253	1.0059052	2.1100-4	2.355-2
450.0	65.0	10.000	-1.5667-1	8.09525	1.34820-1	1.38512	5.78177	3.8559	1.3897909	2.1800-4	2.629-2
450.0	65.0	20.000	-2.1164-2	9.79275	-3.5264	2.49831	6.27385	4.8517	2.5100487	2.3400-4	2.890-2
450.0	65.0	30.480	5.7438-1	1.13331	-7.3444	3.48284	6.31797	5.2614	3.5040119	2.4200-4	2.929-2
450.0	65.0	50.000	2.2334	1.37471	-1.3376	5.02148	6.32188	5.5875	5.0645845	2.5000-4	2.942-2
450.0	65.0	70.000	4.4705	1.58336	-1.8592	6.35127	6.32192	5.7427	6.4216810	2.5400-4	2.944-2
450.0	65.0	90.000	7.0688	1.76666	-2.3175	7.51940	6.32192	5.8339	7.6212510	2.5200-4	2.940-2
450.0	65.0	110.000	9.9329	1.93183	-2.7304	8.57203	6.32192	5.8948	8.7089240	2.5600-4	2.947-2
450.0	65.0	225.000	2.9580	2.68036	-4.6017	1.33424	6.32192	6.0511	1.3736658	3.6000-4	2.940-2
450.0	65.0	350.000	5.4658	3.29006	-6.1260	1.72280	6.32192	6.1151	1.7984833	3.6000-4	2.960-2
450.0	65.0	475.000	8.2294	3.78853	-7.3721	2.04047	6.32192	6.1496	2.1590315	3.6000-4	2.950-2
450.0	100.0	0.010	-1.3500-6	1.00005	2.60857-3	9.96739-2	9.99675-3	5.0023-3	1.0017442-1	0.000	4.503-5
450.0	100.0	0.020	-3.8930-6	1.00011	2.12151-2	1.99347-1	1.99710-2	9.9906-3	2.0034898-1	1.000-8	8.997-5
450.0	100.0	0.050	-5.8800-5	1.00028	3.0212-2	4.98242-1	4.97570-2	2.4916-2	5.0074680-1	1.000-8	2.241-4
450.0	100.0	0.100	-3.5160-5	1.00057	5.9860-2	9.96420-1	9.89482-2	4.9641-2	1.0014341	0.000	4.456-4
450.0	100.0	0.200	-1.2541-4	1.00116	1.1750-1	1.99220	1.95656-1	9.8615-2	2.0022496	1.000-7	8.813-4
450.0	100.0	0.305	-2.6974-4	1.00181	2.17591-1	3.03699	2.94654-1	1.4907-1	3.0523457	2.000-7	1.328-3
450.0	100.0	0.500	-7.1824-4	1.00307	2.7763-1	4.97566	4.72817-1	2.4069-1	5.0009210	2.000-7	2.130-3
450.0	100.0	0.700	-1.3698-3	1.00445	3.7417-1	6.96130	6.47256-1	3.3190-1	6.9967940	4.000-7	2.916-3
450.0	100.0	1.000	-2.6754-3	1.00664	5.0460-1	9.93425	8.94395-1	4.6362-1	9.9852345	4.000-7	4.028-3
450.0	100.0	1.524	-5.7891-3	1.01084	6.9405-1	1.51102	1.28680	6.7856-1	1.5188682	1.000	5.798-3
450.0	100.0	2.000	-9.3634-3	1.01501	8.2792-1	1.97921	1.60432	8.6003-1	1.9896038	2.000-6	7.232-3
450.0	100.0	3.048	-1.8793-2	1.02520	1.0131	3.00259	2.19099	1.2142	3.0187374	1.5000-6	9.888-3
450.0	100.0	5.000	-3.8075-2	1.04690	2.1051	4.87873	2.96499	1.7389	4.9061804	1.1600-5	1.344-2
450.0	100.0	7.000	-5.5617-2	1.07140	2.81336-1	6.75844	3.46455	2.1534	6.7982620	1.3500-5	1.573-2
450.0	100.0	10.000	-6.8553-2	1.11012	2.16093-1	9.49461	3.88547	2.5966	9.5544535	1.5800-5	1.767-2
450.0	100.0	20.000	4.6224-2	1.23913	-2.7884	1.79520	4.25573	3.3135	1.8090479	2.1100-4	1.958-2
450.0	100.0	30.480	4.0920-1	1.36390	-2.58791	2.59269	4.29147	3.6098	2.6165213	2.1500-4	1.985-2
450.0	100.0	50.000	1.5801	1.56987	-1.1025	3.90550	4.29480	3.8407	3.9519407	2.1600-4	1.988-2
450.0	100.0	70.000	3.2597	1.75514	-2.15657	5.08625	4.29484	3.9470	5.1604500	2.2100-4	1.992-2
450.0	100.0	90.000	5.2926	1.92181	-1.9824	6.14846	4.29484	4.0079	6.2544205	2.1900-4	1.989-2
450.0	100.0	110.000	7.5994	2.07438	-2.3638	7.12078	4.29484	4.0477	7.2620330	2.2000-4	1.995-2
450.0	100.0	225.000	2.4322	2.78365	-4.1370	1.16409	4.29484	4.1457	1.2040326	3.2000-4	1.990-2
450.0	100.0	350.000	4.6671	3.73669	-5.6121	1.54012	4.29484	4.1838	1.6163575	3.2000-4	1.990-2
450.0	100.0	475.000	7.1883	3.86048	-6.8290	1.85036	4.29484	4.2037	1.9694869	3.2000-4	1.990-2

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	200.0	0.010	-1.2180-5	2.00002	2	3.0106-3	4.93908-2	4.94816-3	5.0393070-2	0.000	2.265-5
450.0	200.0	0.020	-1.1752-5	2.00005	2	6.0129-3	9.87180-2	9.88540-3	1.0072376-1	0.000	4.522-5
450.0	200.0	0.050	-1.3518-5	2.00014	2	1.4958-2	2.46571-1	2.46571-1	2.5159135-1	0.000	1.126-4
450.0	200.0	0.100	-1.9470-5	2.00028	2	2.9634-2	4.93335-1	4.89865-2	5.0337195-1	3.000-8	2.240-4
450.0	200.0	0.200	-3.1160-5	2.00057	2	5.8187-2	9.86478-1	9.8851-2	1.0065641	0.000	4.430-4
450.0	200.0	0.305	-5.2210-5	2.00090	2	8.6935-2	1.50415	1.45940-1	1.5348054	0.000	6.678-4
450.0	200.0	0.500	-2.0032-4	2.00152	2	1.3756-1	2.46565	2.34287-1	2.5159363	0.000	1.072-3
450.0	200.0	0.700	-3.2126-4	2.00220	2	1.8549-1	3.45105	3.20872-1	3.5215145	-1.000-7	1.467-3
450.0	200.0	1.000	-6.5680-4	2.00329	2	2.5031-1	4.432876	4.43660-1	5.0295635	1.000-7	2.029-3
450.0	200.0	1.524	-1.4437-3	2.00538	2	3.4469-1	7.50753	6.39204-1	7.6615395	5.000-7	2.924-3
450.0	200.0	2.000	-2.3163-3	2.00747	2	4.1160-1	9.84726	7.37892-1	1.0049827	0.000	3.651-3
450.0	200.0	3.048	-4.7123-3	2.01259	2	5.0464-1	1.49888	1.09262	1.5299161	1.000-6	5.005-3
450.0	200.0	5.000	-9.4899-3	2.02362	2	5.2397-1	2.45234	1.48598	2.5037424	3.000-6	6.836-3
450.0	200.0	7.000	-1.3772-2	2.03627	2	4.0103-1	3.42314	1.74386	3.4958200	1.000-6	8.020-3
450.0	200.0	10.000	-1.6357-2	2.05670	2	5.6631-2	4.86668	1.96572	4.9720871	8.000-6	9.052-3
450.0	200.0	20.000	2.5832-2	2.12839	2	-1.5826	9.56508	2.16953	9.7865350	1.000-5	1.010-2
450.0	200.0	30.480	1.6108-1	2.20263	2	-3.4226	1.43098	2.19079	1.4664045	2.000-5	1.023-2
450.0	200.0	50.000	6.4306-1	2.33446	2	-6.7169	2.27132	2.19292	2.342720	2.000-5	1.027-2
450.0	200.0	70.000	1.4090	2.46161	2	-0.8957	3.08164	2.19295	3.1763160	2.000-5	1.028-2
450.0	200.0	90.000	2.4133	2.58190	2	-1.2902	3.84822	2.19295	3.9778664	3.000-5	1.029-2
450.0	200.0	110.000	3.6268	2.69624	2	-1.5761	4.57694	2.19295	4.7445639	3.000-5	1.028-2
450.0	200.0	225.000	1.3738	3.26810	2	-3.0057	8.22139	2.19295	8.6569675	2.000-5	1.023-2
450.0	200.0	350.000	2.9098	3.77843	2	-4.2816	1.14737	2.19295	1.2278110	3.000-5	1.030-2
450.0	200.0	475.000	4.7725	4.21450	2	-5.3717	1.142528	2.19295	1.5489945	3.000-4	1.030-2
450.0	400.0	0.010	-5.0409-5	4.00001	2	1.4399-3	2.37713-2	2.37242-3	2.5789102-2	0.000	1.159-5
450.0	400.0	0.020	-4.7020-5	4.00002	2	2.8796-3	4.74152-2	4.73965-3	5.1460775-2	2.300-8	2.313-5
450.0	400.0	0.050	-1.6510-5	4.00006	2	7.1721-3	1.18219-1	1.18096-2	1.2835865-1	6.000-8	5.750-5
450.0	400.0	0.100	-5.0060-5	4.00013	2	1.4205-2	2.36630-1	2.34880-2	2.5689426-1	7.000-8	1.144-4
450.0	400.0	0.200	-1.2400-5	4.00027	2	2.8790-2	4.73005-1	4.64570-2	5.1357715-1	5.000-8	2.261-4
450.0	400.0	0.305	-5.5300-5	4.00043	2	4.1683-2	7.21425-1	6.99836-2	7.8326520-1	8.000-8	3.408-4
450.0	400.0	0.500	-4.3180-5	4.00073	2	6.5976-2	1.18244	1.12361-1	1.2838598	0.000	5.467-4
450.0	400.0	0.700	-1.3383-4	4.00105	2	8.8964-2	1.65545	1.63904-1	1.7974511	0.000	7.488-4
450.0	400.0	1.000	-1.4800-4	4.00158	2	1.2008-1	2.336451	2.12836-1	2.5674527	1.000-7	1.036-3
450.0	400.0	1.524	-3.5450-4	4.00258	2	1.6540-1	3.60298	3.06745-1	3.9124385	0.000	1.493-3
450.0	400.0	2.000	-5.6900-4	4.00358	2	1.9756-1	4.27256	3.83014-1	5.1338970	-1.000-7	1.864-3
450.0	400.0	3.048	-1.1094-3	4.00605	2	2.4234-1	7.20201	5.24862-1	7.8220300	1.000-7	2.557-3
450.0	400.0	5.000	-2.0764-3	4.01137	2	2.5167-1	1.18046	7.14751-1	1.2824179	1.000-6	3.497-3
450.0	400.0	7.000	-2.9822-3	4.01751	2	1.9204-1	1.65120	8.39774-1	1.7942872	1.000-6	4.108-3
450.0	400.0	10.000	-2.8760-3	4.02747	2	2.4004-2	2.35540	9.47979-1	2.5605899	2.000-6	4.642-3
450.0	400.0	20.000	1.3261-2	4.06303	2	-7.8935-1	4.68568	1.604874	5.1014140	4.000-6	5.192-3
450.0	400.0	30.480	5.9764-2	4.10080	2	-3.7253	7.09993	1.105955	7.7415360	6.000-6	5.270-3
450.0	400.0	50.000	2.2782-1	4.17014	2	-3.4581	1.15193	1.06067	1.2598925	2.000	5.280-3
450.0	400.0	70.000	5.0654-1	4.23967	2	-5.1962	1.59502	1.06069	1.7498361	2.000	5.280-3
450.0	400.0	90.000	8.8903-1	4.30772	2	-6.8975	2.02871	1.06069	2.2323650	2.000	5.290-3
450.0	400.0	110.000	1.3709	4.37436	2	-8.45637	2.45345	1.06069	2.7078774	2.000	5.280-3
450.0	400.0	225.000	5.9106	4.74336	2	-1.47538	1.0374	1.06069	5.3222215	3.000-5	5.300-3
450.0	400.0	350.000	1.3843	5.08443	2	-2.6315	6.97869	1.06069	7.9734265	3.000-5	5.290-3
450.0	400.0	475.000	2.4453	5.40291	2	-3.4277	9.00836	1.06069	1.0469791	3.000	5.300-3

SURFACE N	α_0	HEIGHT	DELTA H	THETA	DELTA THETA	DISTANCE	TAU	ERROR ANGLE	SLANT RANGE	DELTA R	DELTA R-E
450.0	900.0	0.010	3.6277-4	9.00000 2	4.9597-4	7.64761-3	7.95970-4	3.9056-4	1.2589128-2	0.000	5.659-6
450.0	900.0	0.020	-1.5789-4	9.00000 2	9.6269-4	1.59962-2	1.59019-3	7.7965-4	2.5610181-2	5.853-6	1.736-5
450.0	900.0	0.050	-1.1387-4	9.00002 2	2.4022-3	3.97676-2	3.96222-3	2.0061-3	6.3886425-2	6.013-6	3.461-5
450.0	900.0	0.100	-2.2853-4	9.00004 2	4.7605-3	7.95352-2	7.88054-3	3.9852-3	1.2777305-1	6.010-6	6.287-5
450.0	900.0	0.200	4.2331-4	9.00009 2	9.3746-3	1.58369-1	1.55871-2	7.8591-3	2.5511108-1	6.600-6	1.189-4
450.0	900.0	0.305	-1.9267-4	9.00014 2	1.3981-2	2.42174-1	2.34810-2	1.1902-2	3.8945646-1	7.260-6	1.767-4
450.0	900.0	0.500	4.3274-4	9.00024 2	2.2150-2	3.96401-1	3.77008-2	1.9176-2	6.3808035-1	7.510-6	2.792-4
450.0	900.0	0.700	2.6293-4	9.00035 2	2.9861-2	5.55217-1	5.16414-2	2.6470-2	8.9347630-1	7.580-6	3.798-4
450.0	900.0	1.000	-1.7570-4	9.00053 2	4.0289-2	7.93567-1	7.14192-2	3.87041-2	1.2766553	7.700-6	5.226-4
450.0	900.0	1.524	3.1940-4	9.00086 2	5.5520-2	1.20883	1.02940-1	5.4250-2	1.9453030	7.800-6	7.501-4
450.0	900.0	2.000	-9.8500-5	9.00120 2	6.6303-2	1.58668	1.28545-1	6.8900-2	2.5531106	7.900-6	9.352-4
450.0	900.0	3.048	-7.9600-5	9.00203 2	8.1344-2	2.41766	1.76184-1	9.7645-2	3.8907857	7.900-6	1.280-3
450.0	900.0	5.000	-3.5660-4	9.00382 2	8.4473-2	3.96497	2.40010-1	1.4076-1	6.3822670	7.900-6	1.748-3
450.0	900.0	7.000	3.1170-4	9.00588 2	6.4422-2	5.54860	2.82082-1	1.7544-1	8.3942485	8.000-6	2.052-3
450.0	900.0	10.000	6.4800-4	9.00924 2	7.7612-3	7.92274	3.18553-1	2.1329-1	1.2761987 1	8.000-6	2.318-3
450.0	900.0	20.000	9.0290-3	9.02128 2	-2.6773-1	1.58149 1	3.52648-1	2.7653-1	2.5512695 1	8.000-6	2.590-3
450.0	900.0	30.480	2.8890-2	9.03417 2	-5.8714-1	2.40512 1	3.56339-1	3.0331-1	3.8862050 1	8.000-6	2.627-3
450.0	900.0	50.000	9.5280-2	9.05809 2	-1.1848	3.92987 1	3.56726-1	3.2406-1	6.3690685 1	1.100-5	2.641-3
450.0	900.0	70.000	2.0352-1	9.08241 2	-1.7928	5.47960 1	3.56731-1	3.3337-1	8.9081785 1	9.000-6	2.637-3
450.0	900.0	90.000	3.5147-1	9.10653 2	-2.3958	7.01688 1	3.56731-1	3.3854-1	1.1442531 2	1.000-5	2.640-3
450.0	900.0	110.000	5.4059-1	9.13046 2	-2.9940	8.54177 1	3.56731-1	3.4183-1	1.3972118 2	1.000-5	2.640-3
450.0	900.0	225.000	2.3965	9.26441 2	-6.3428	1.70787 2	3.56731-1	3.4941-1	2.8429085 2	1.000-5	2.650-3
450.0	900.0	350.000	5.8700	9.40339 2	-9.8172	2.59355 2	3.56731-1	3.5200-1	4.3982895 2	0.000	2.640-3
450.0	900.0	475.000	1.0816 1	9.53596 2	-1.3131 1	3.43847 2	3.56731-1	3.5322-1	5.9383295 2	-2.000-5	2.590-3

Appendix B*

RAY-TRACING DIAGRAMS

	Page
PART 1 - Transmitter 2000 feet above superstandard layer - Cases 1 through 11	61
PART 2 - Transmitter 1000 feet above superstandard layer - Cases 12 through 22	75
PART 3 - Transmitter at base of superstandard layer - Cases 23 through 33	89
PART 4 - Transmitter 500 feet below superstandard layer - Cases 24 through 44	103
PART 5 - Transmitter 1000 feet below superstandard layer - Cases 45 through 55	117
PART 6 - Transmitter 100 feet above surface in superstandard layer - Cases 56 through 61.	131

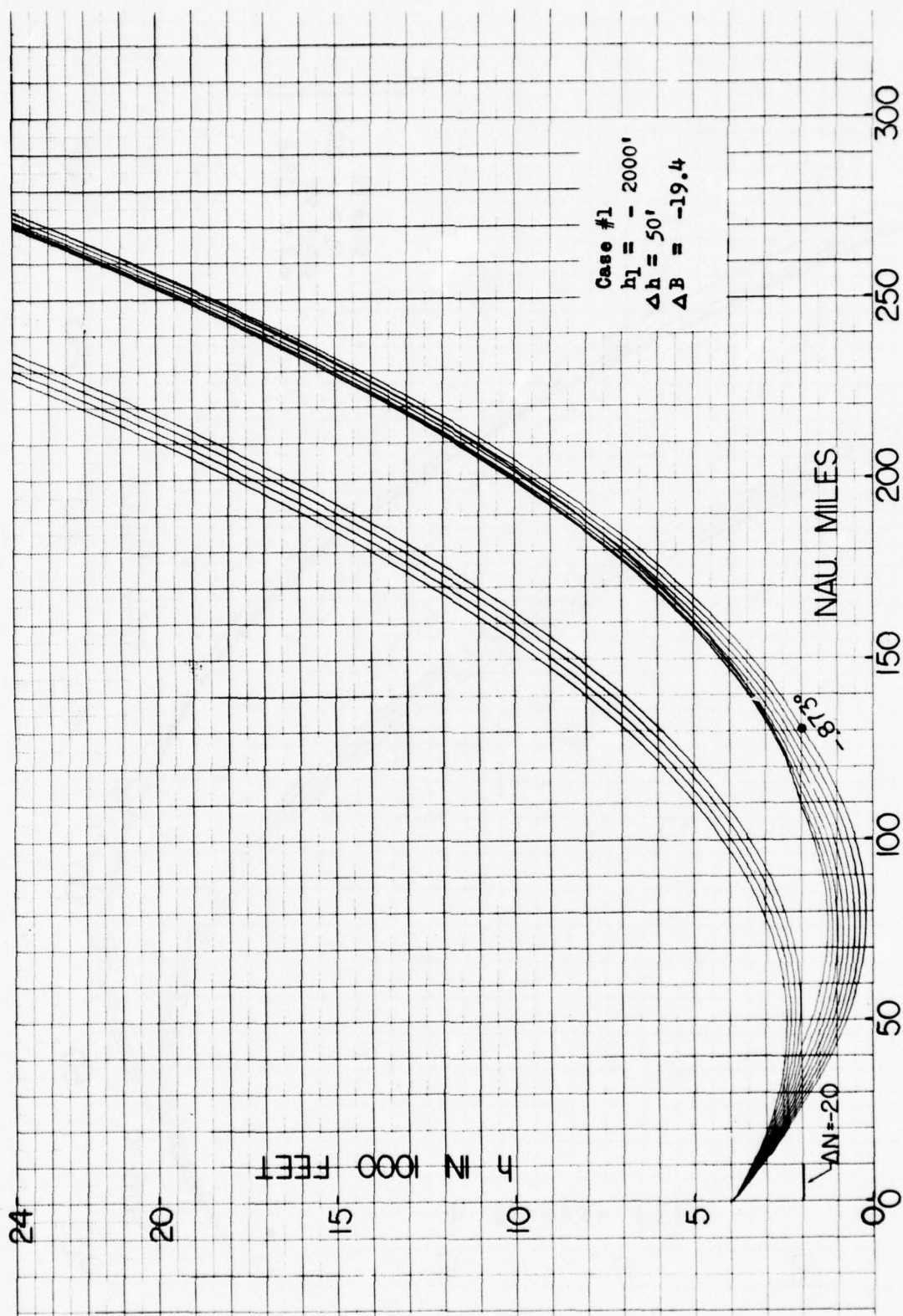
* See sections 6.4 and 9.1.4, Volume I, for employment of diagrams in radar coverage computations.

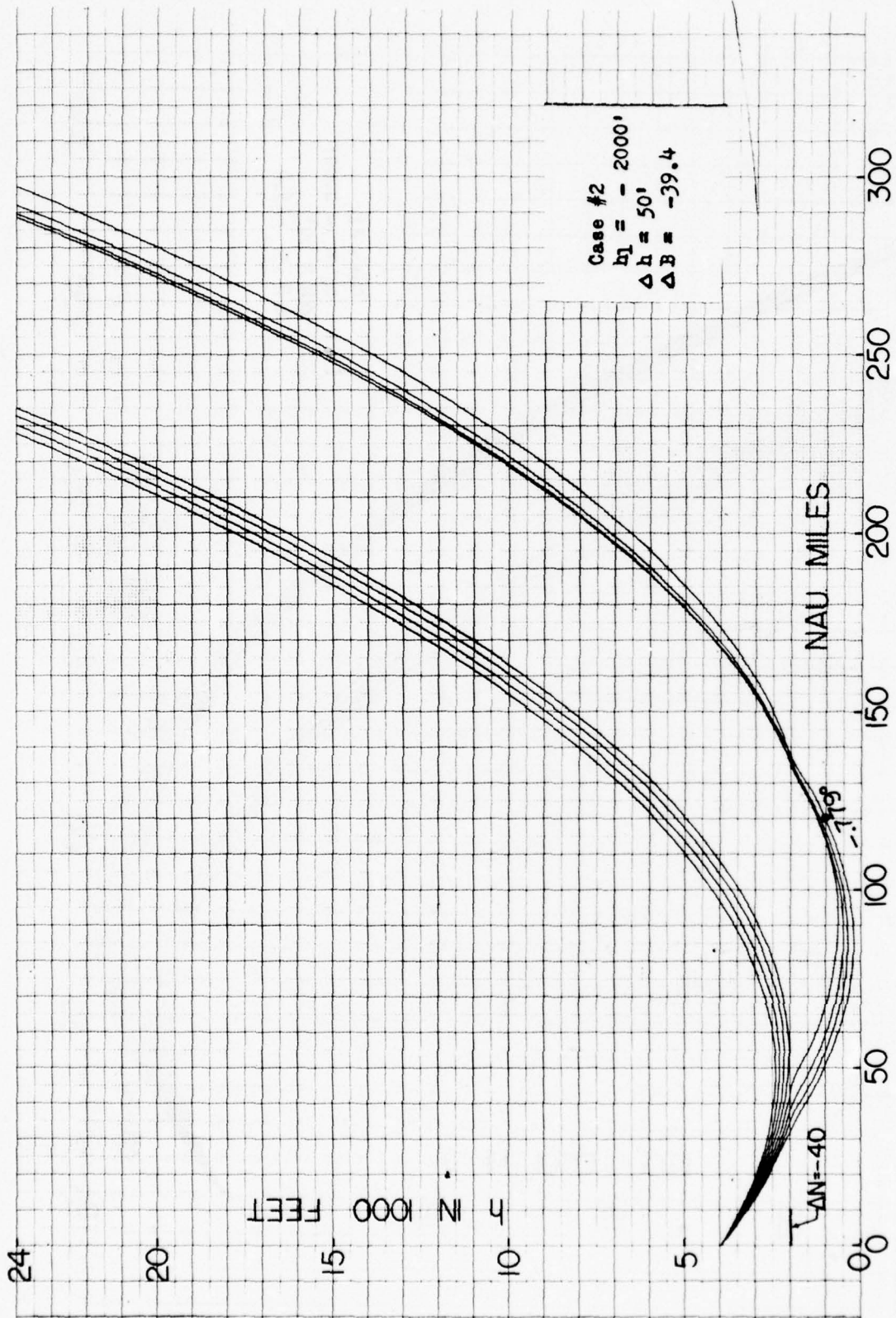
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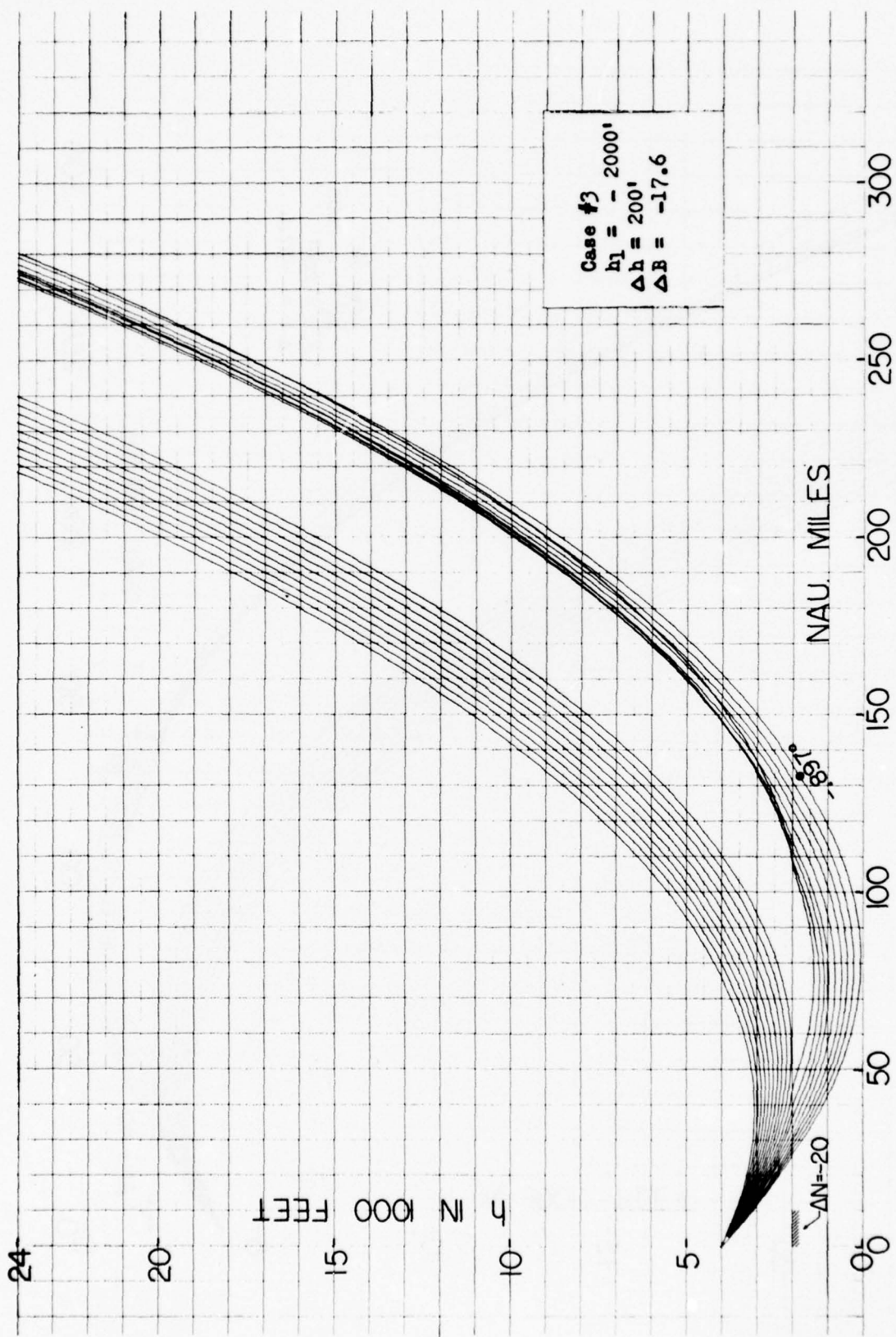
TRANSMITTER 2000 FEET ABOVE SUPERSTANDARD LAYER

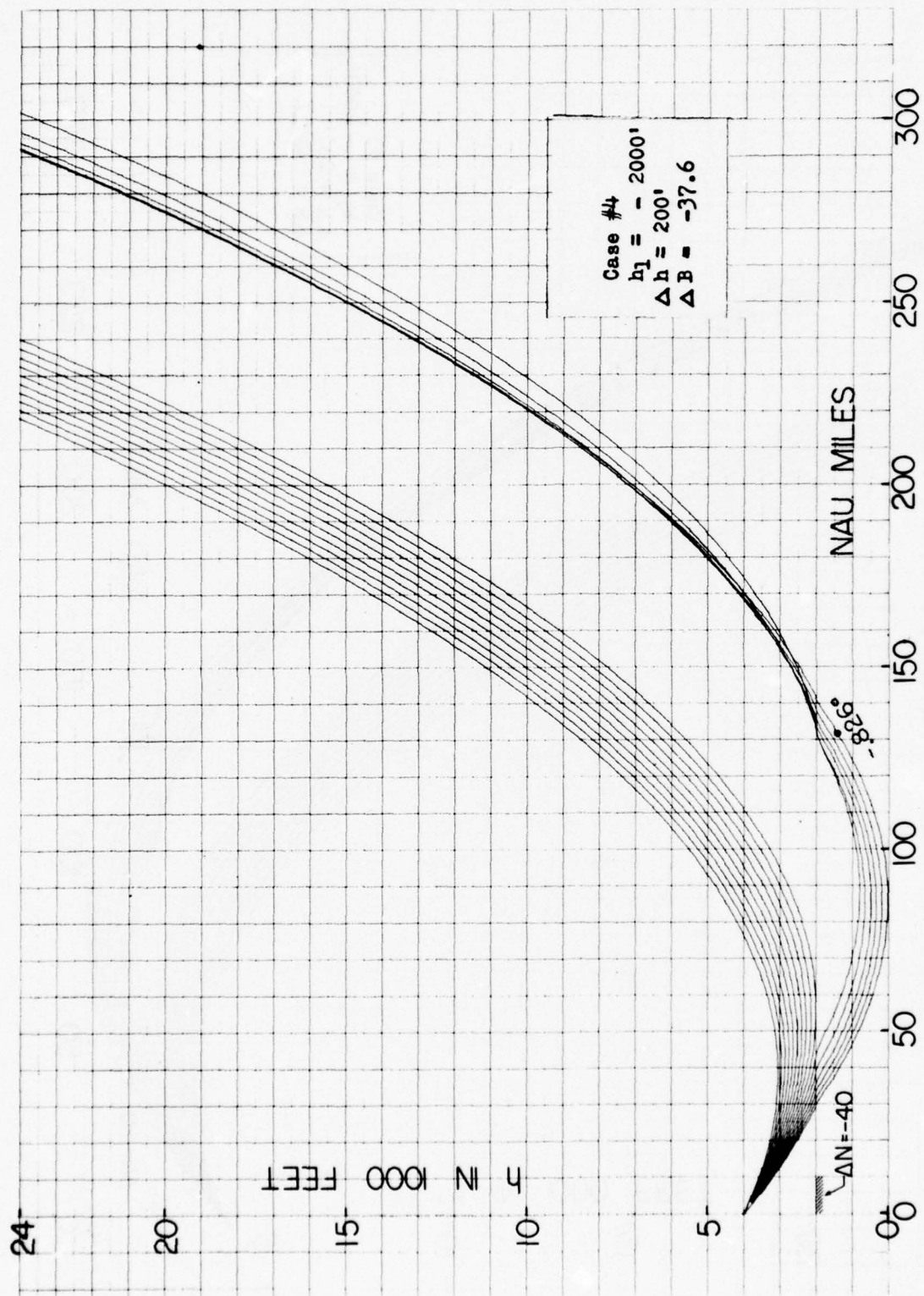
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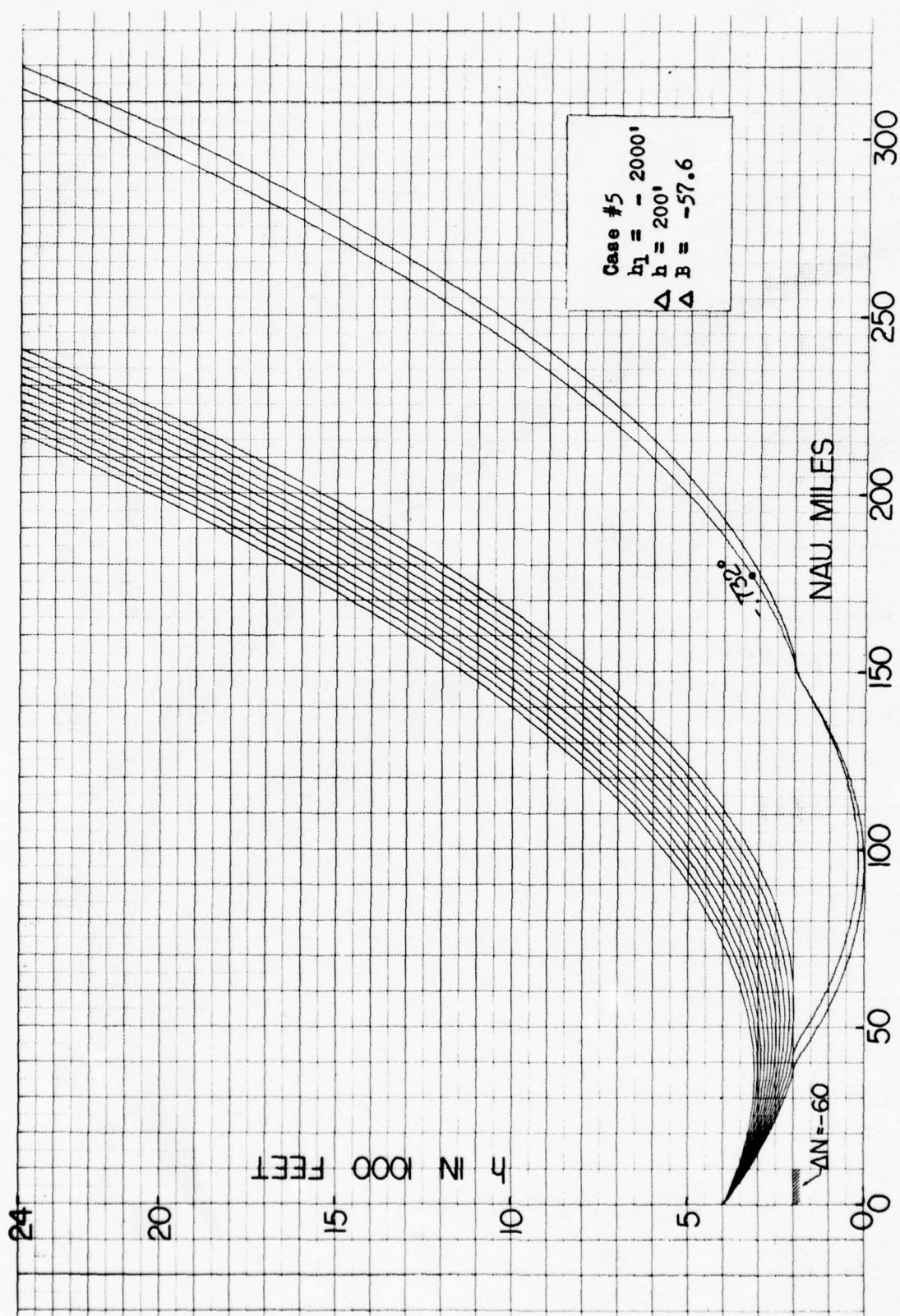
<u>Case</u>	<u>$h_T - h_B$ Thickness</u>	<u>$-\Delta N$</u>	<u>$-\Delta B$</u>	<u>Trapping Intensity</u>	<u>Page</u>
1	50'	20	19.4	Yes	63
2	50'	40	39.4	Yes	64
3	200'	20	17.6	Yes	65
4	200'	40	37.6	Yes	66
5	200'	60	57.6	Yes	67
6	500'	20	14	No	68
7	500'	40	34	Yes	69
8	500'	60	54	Yes	70
9	1000'	20	8	No	71
10	1000'	40	28	No	72
11	1000'	60	48	Yes	73

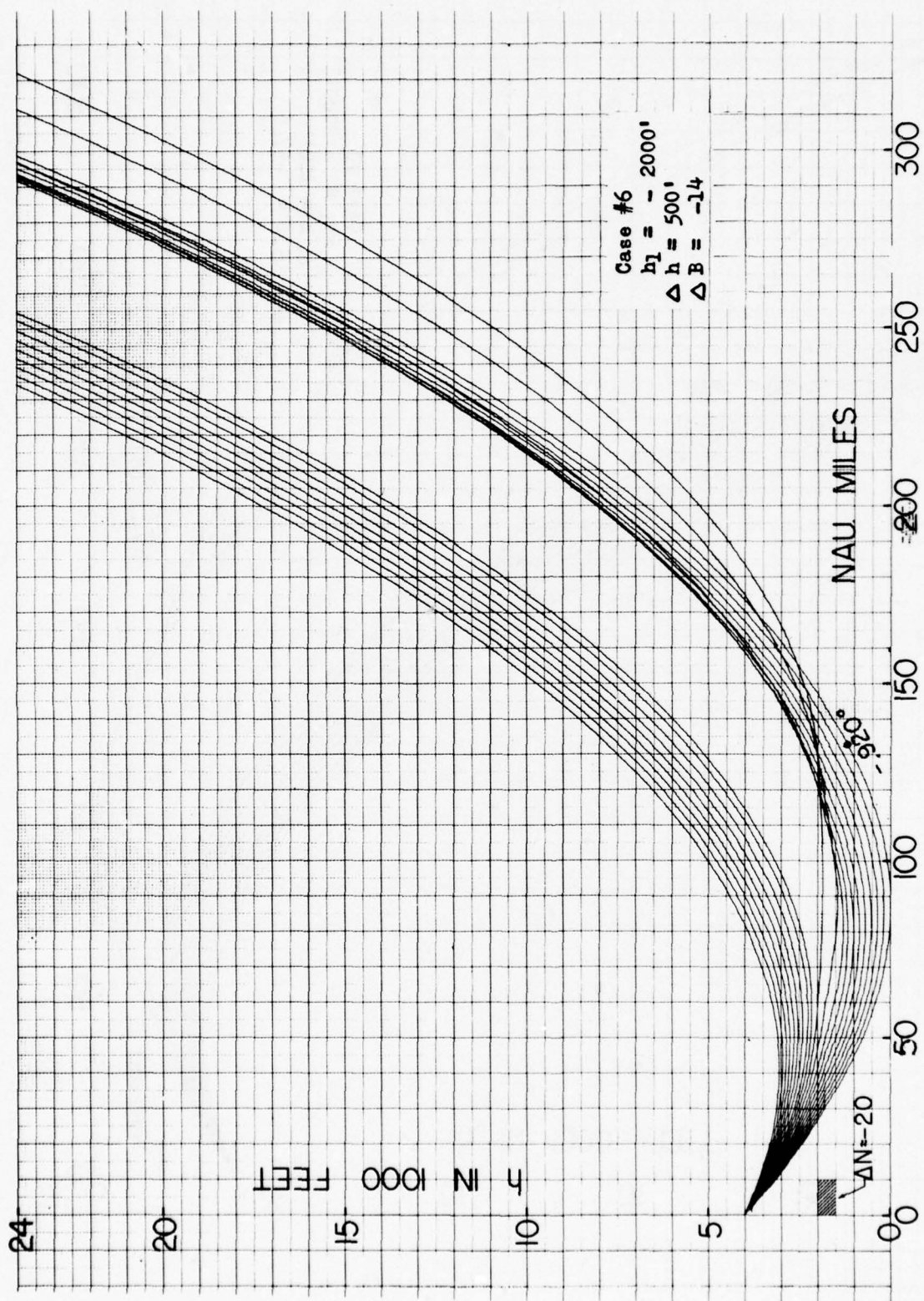


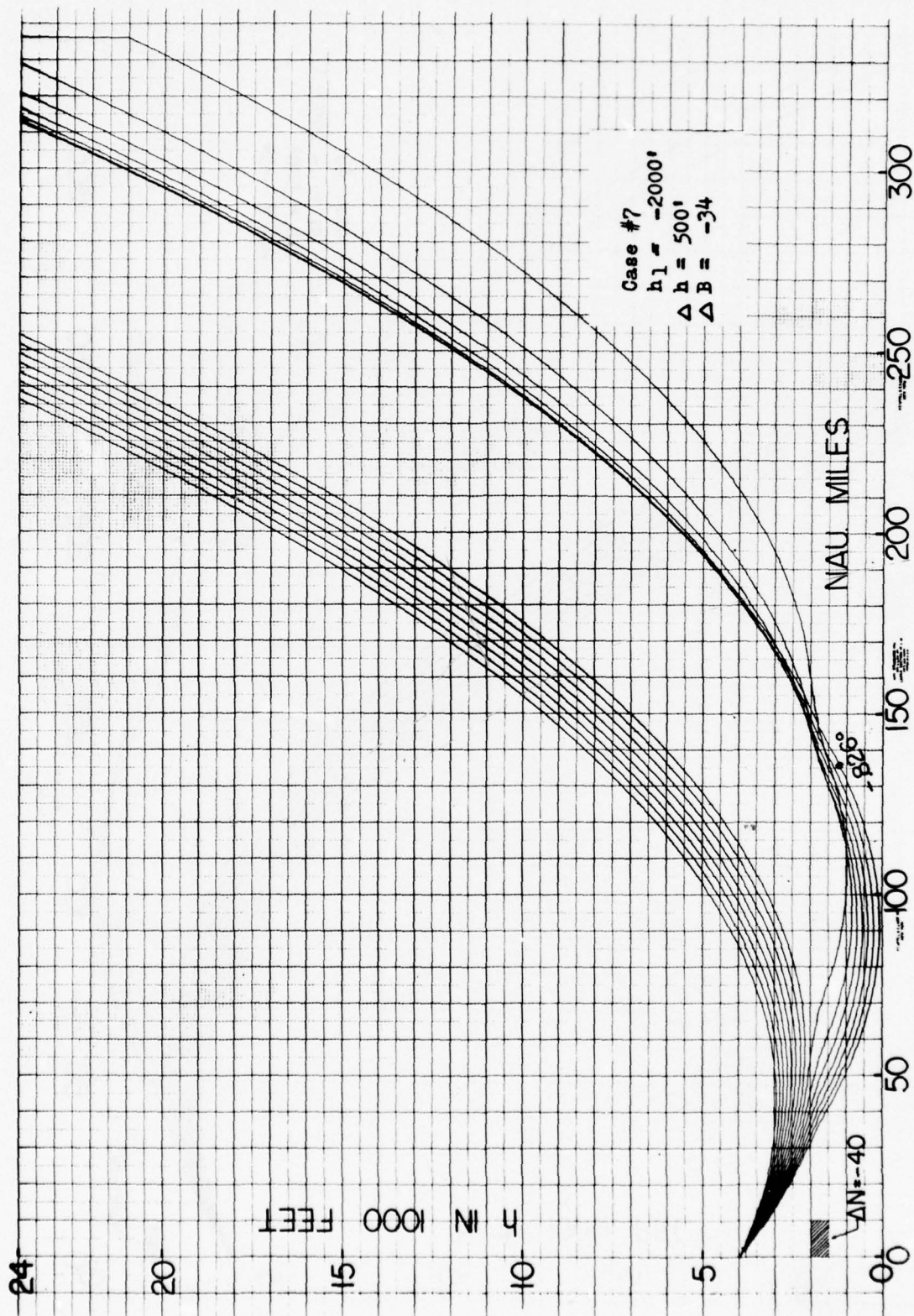


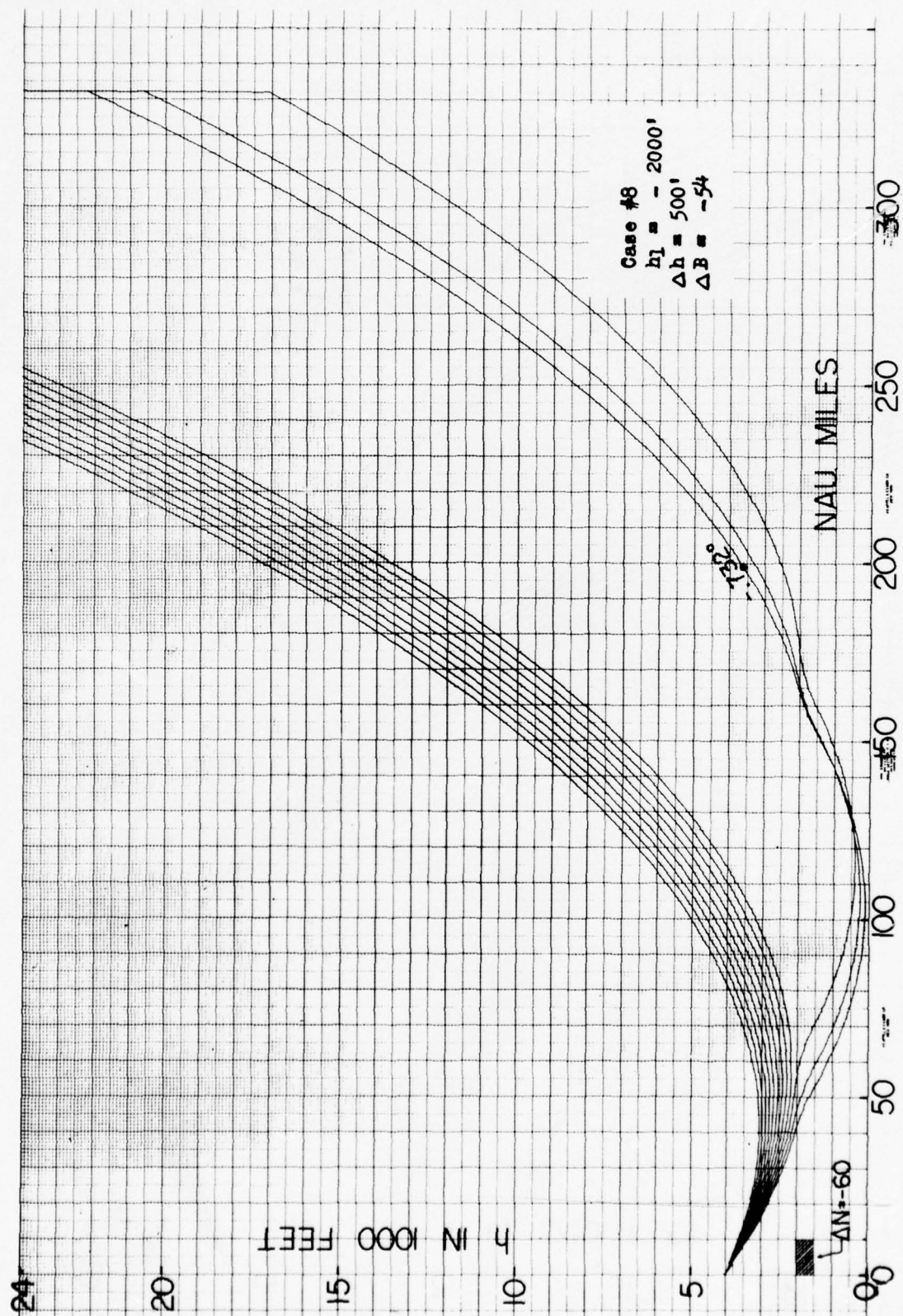


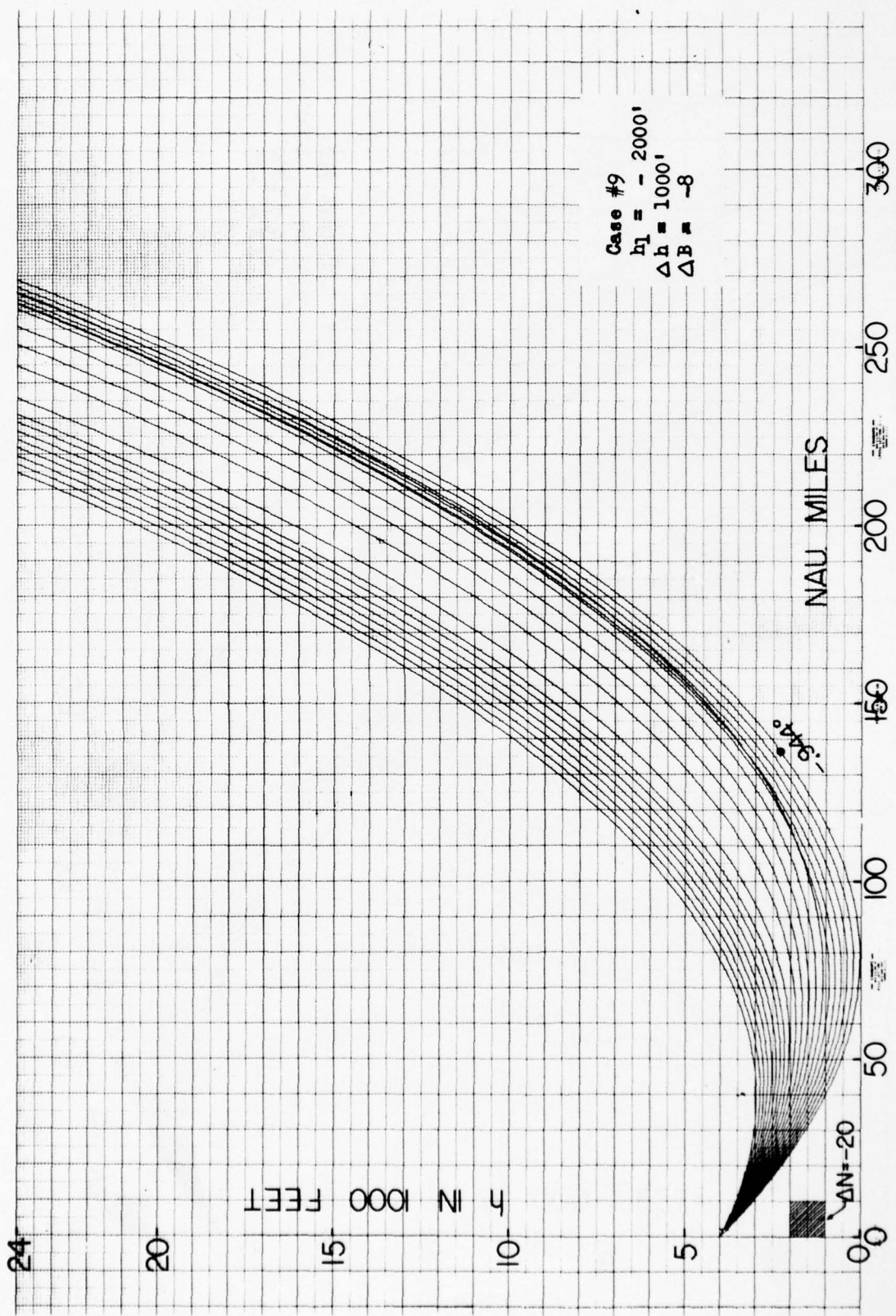


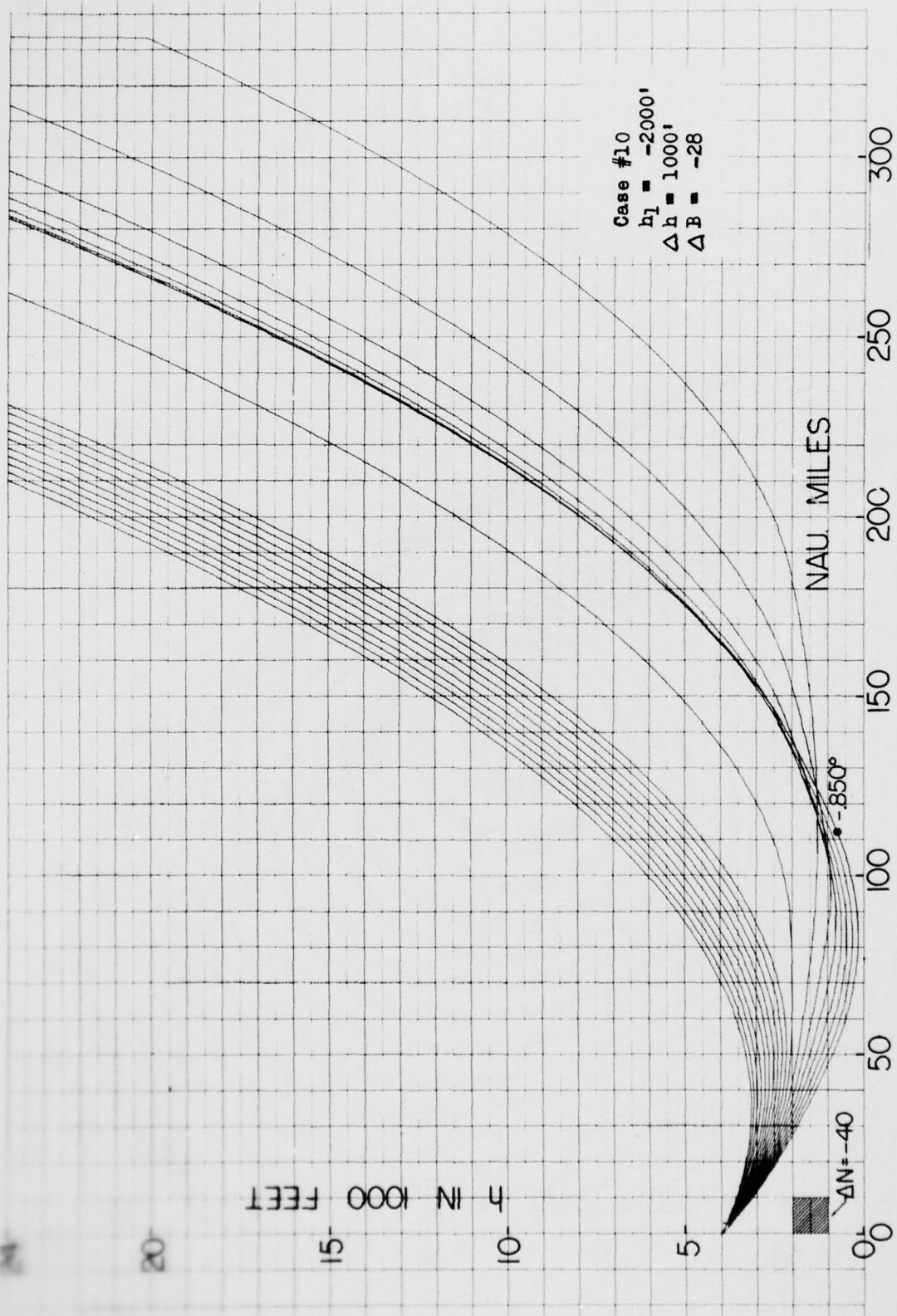


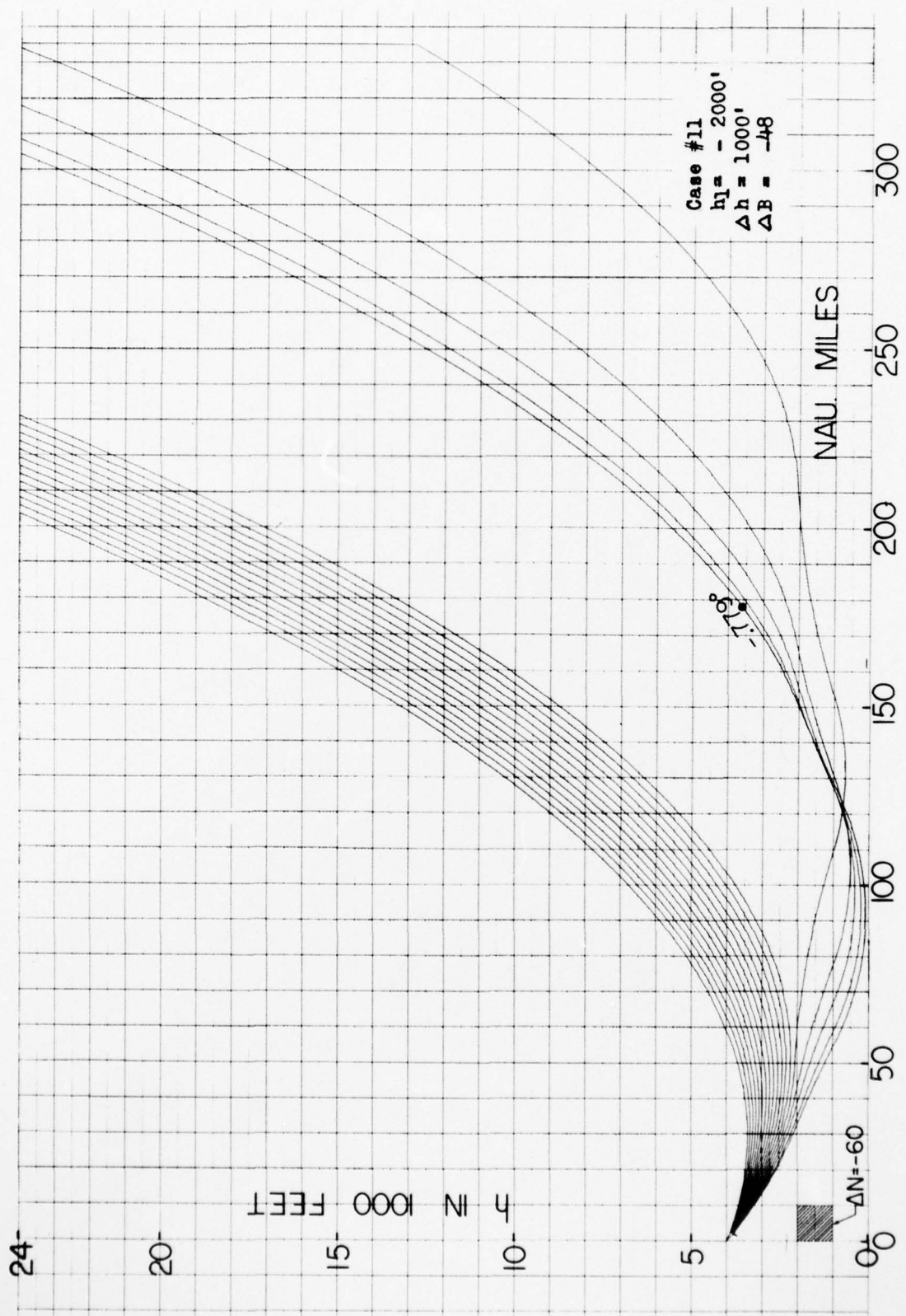












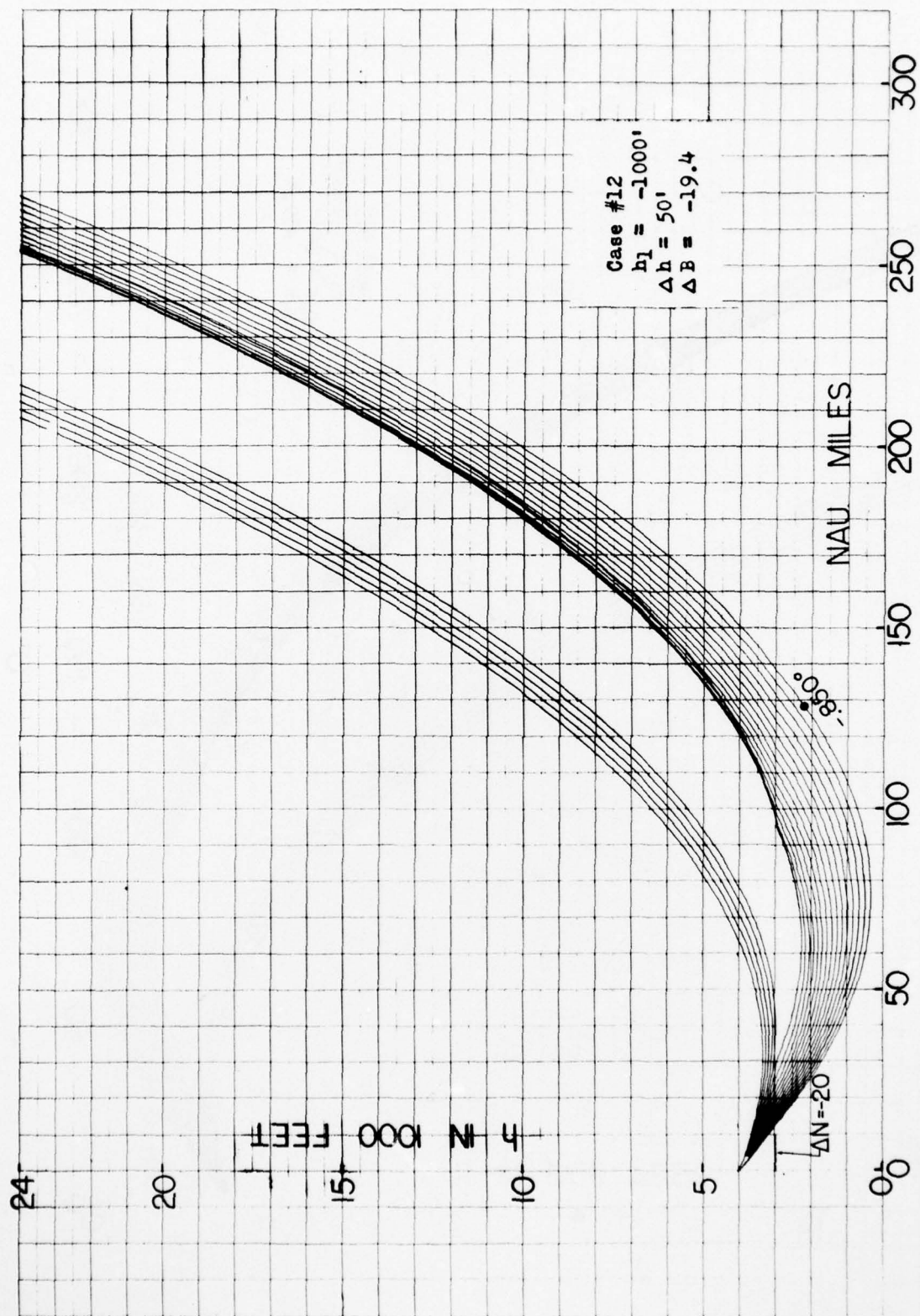
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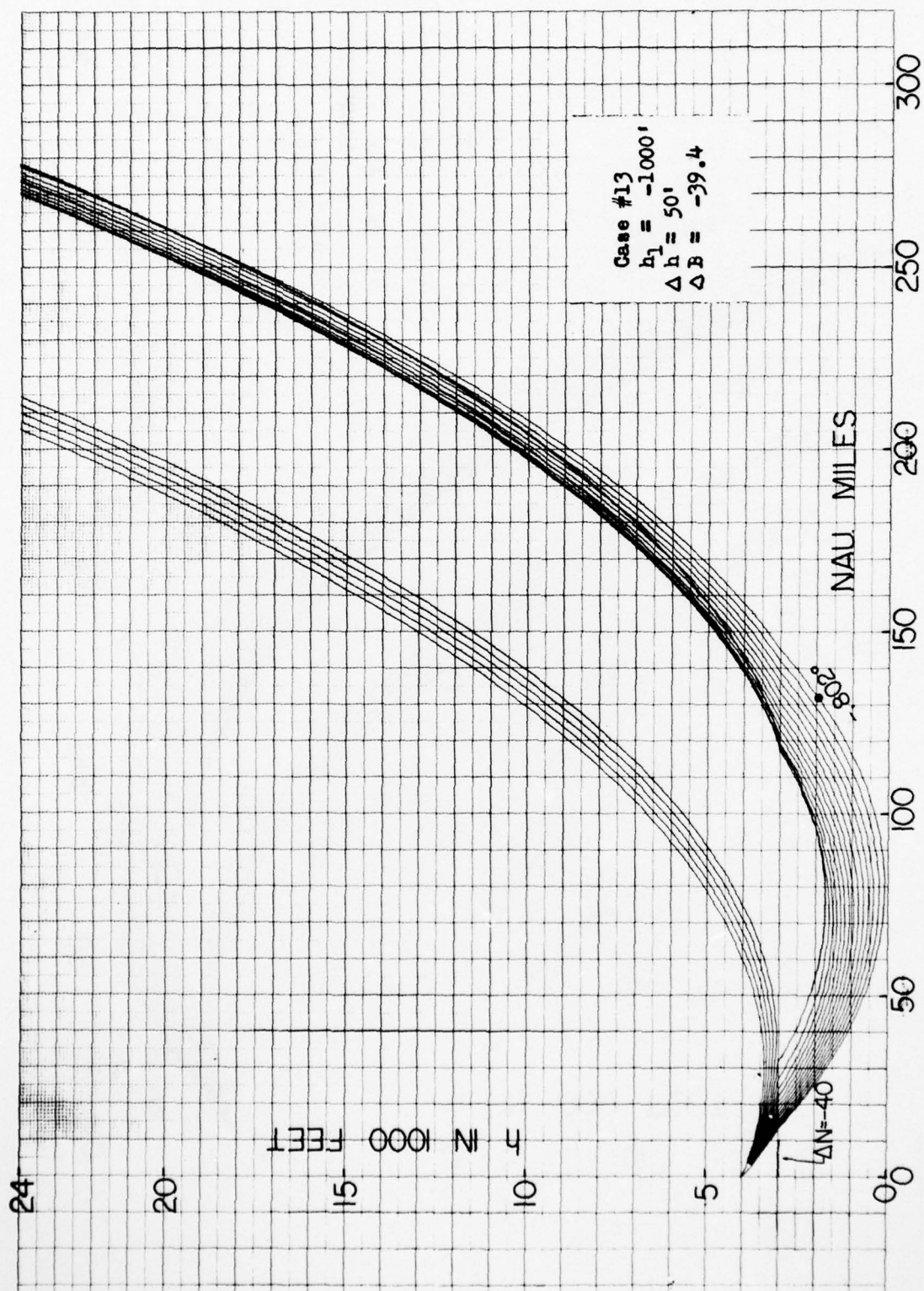
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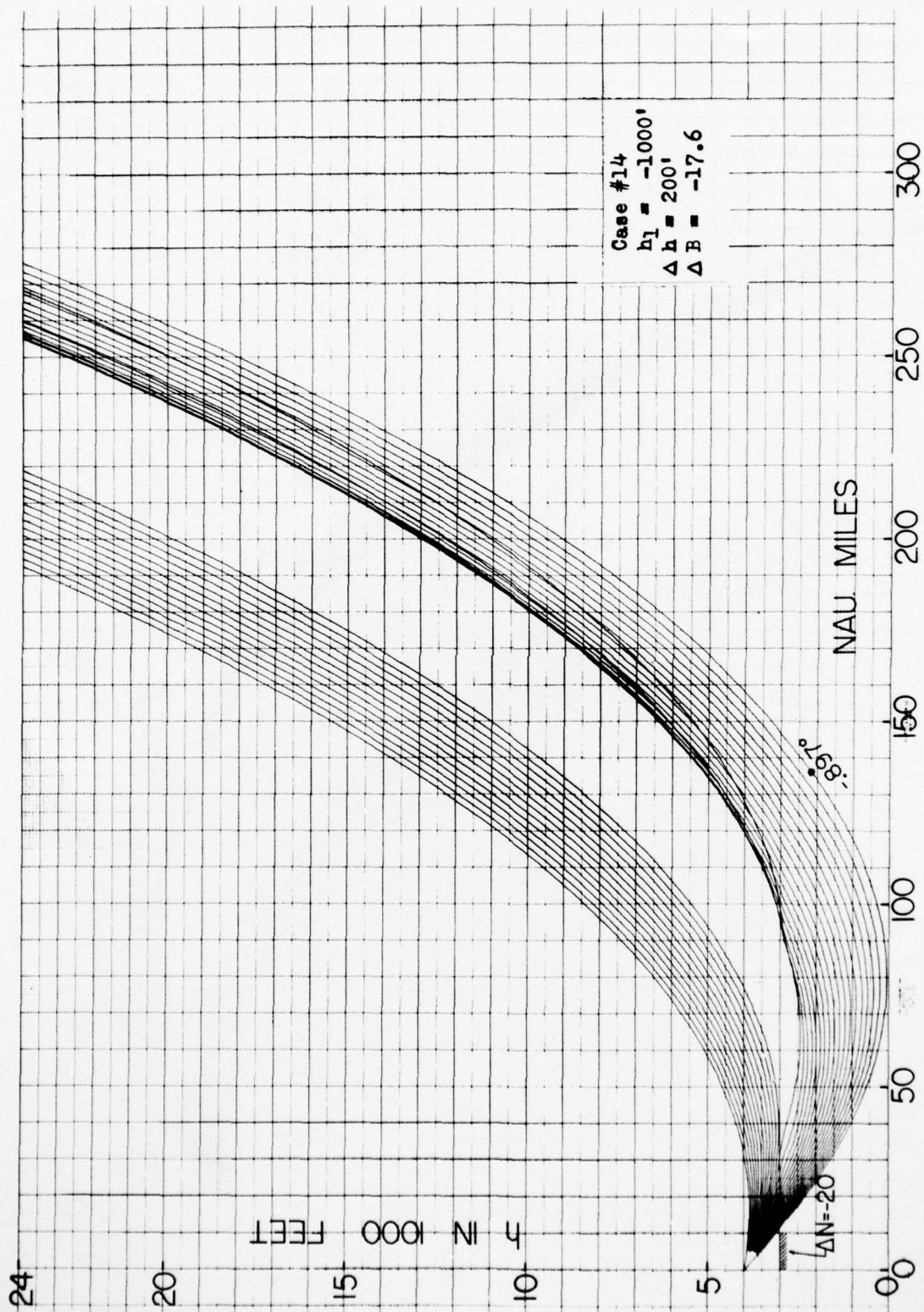
PART 2

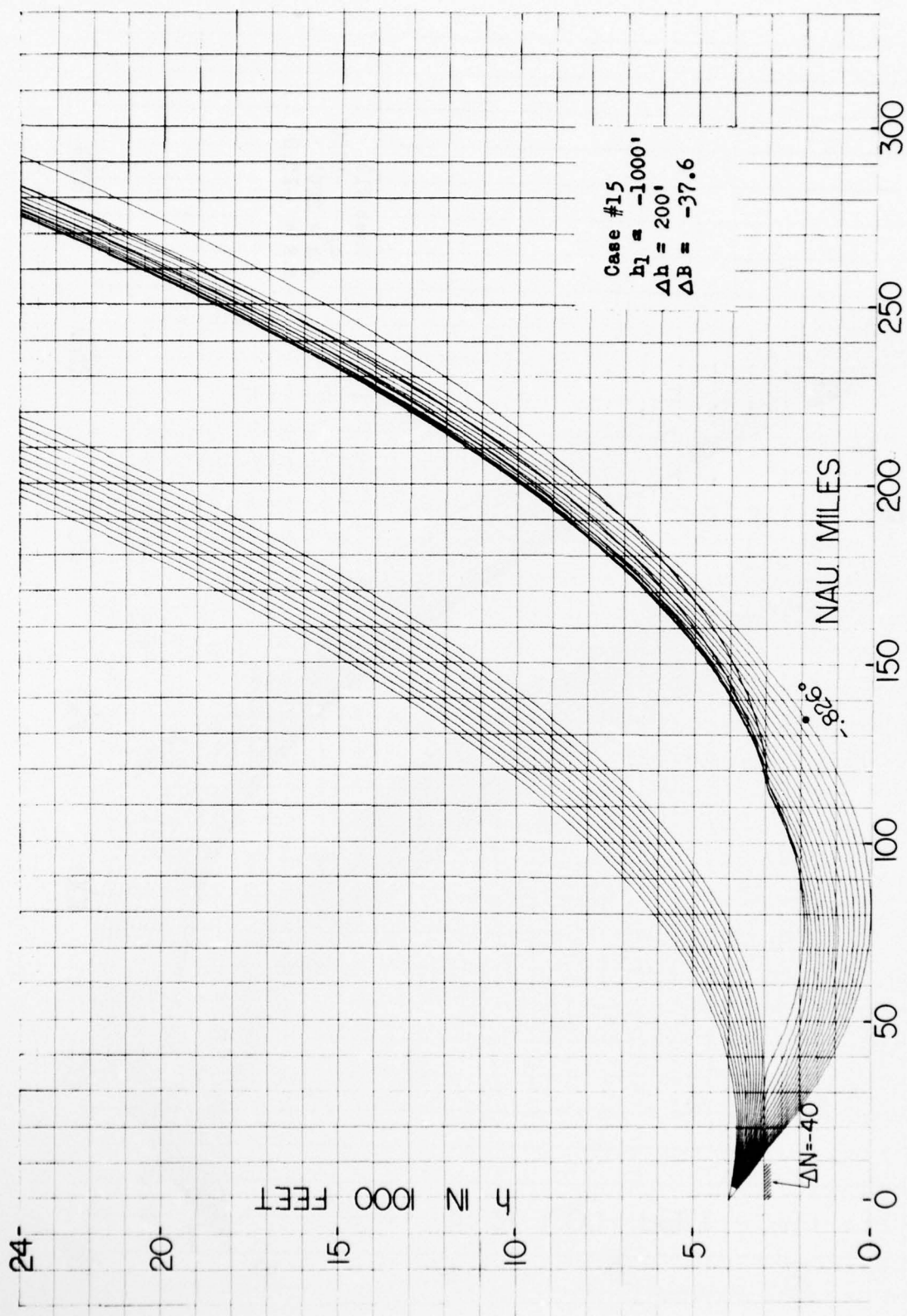
TRANSMITTER 1000 FEET ABOVE SUPERSTANDARD LAYER

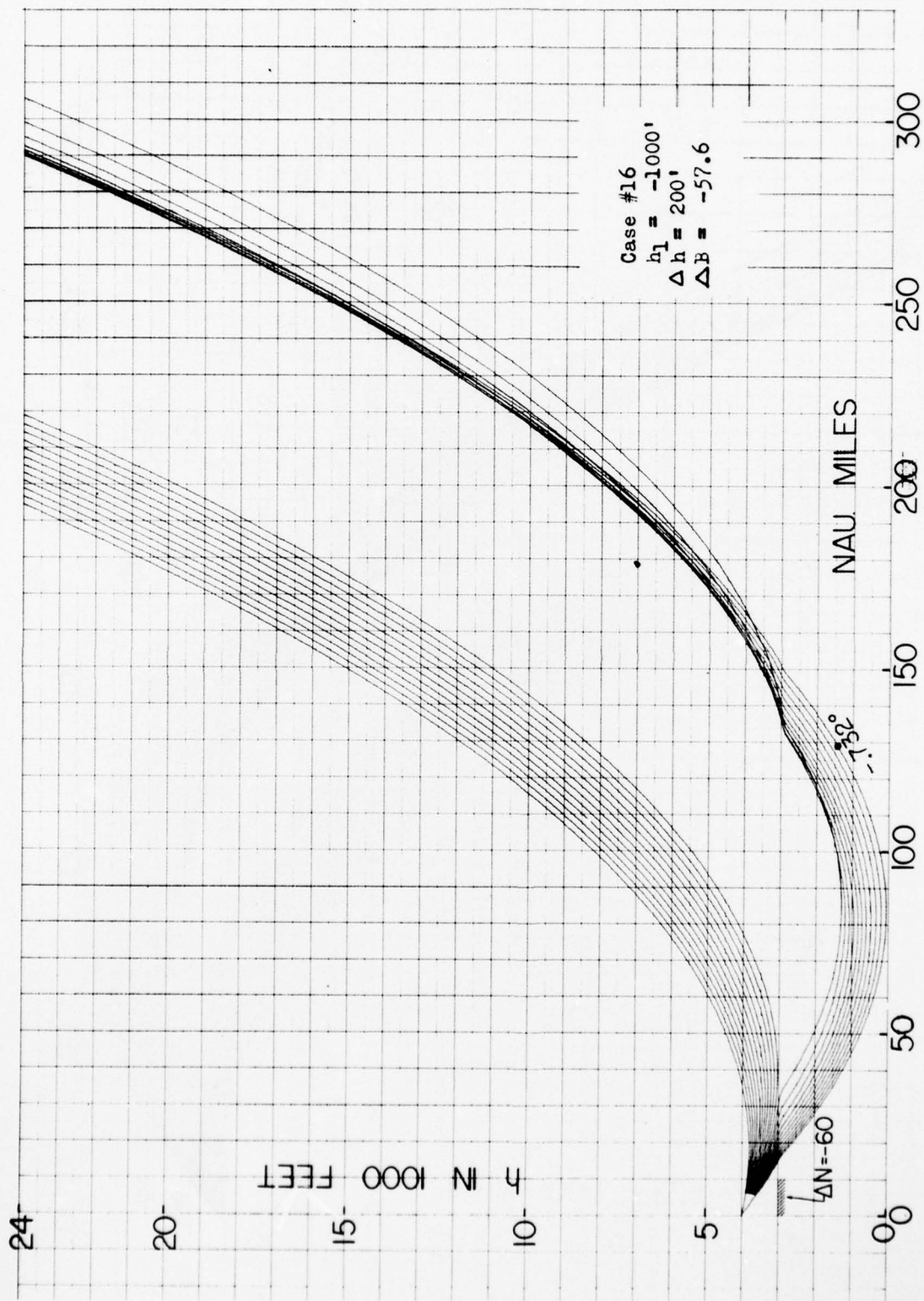
<u>Layer Characteristics</u>					
<u>Case</u>	$h_T - h_B$ <u>Thickness</u>	<u>-ΔN</u>	<u>-ΔB</u>	<u>Trapping Intensity</u>	<u>Page</u>
12	50'	20	19.4	Yes	77
13	50'	40	39.4	Yes	78
14	200'	20	17.6	Yes	79
15	200'	40	37.6	Yes	80
16	200'	60	57.6	Yes	81
17	500'	20	14	No	82
18	500'	40	34	Yes	83
19	500'	60	54	Yes	84
20	1000'	20	8	No	85
21	1000'	40	28	No	86
22	1000'	60	48	Yes	87

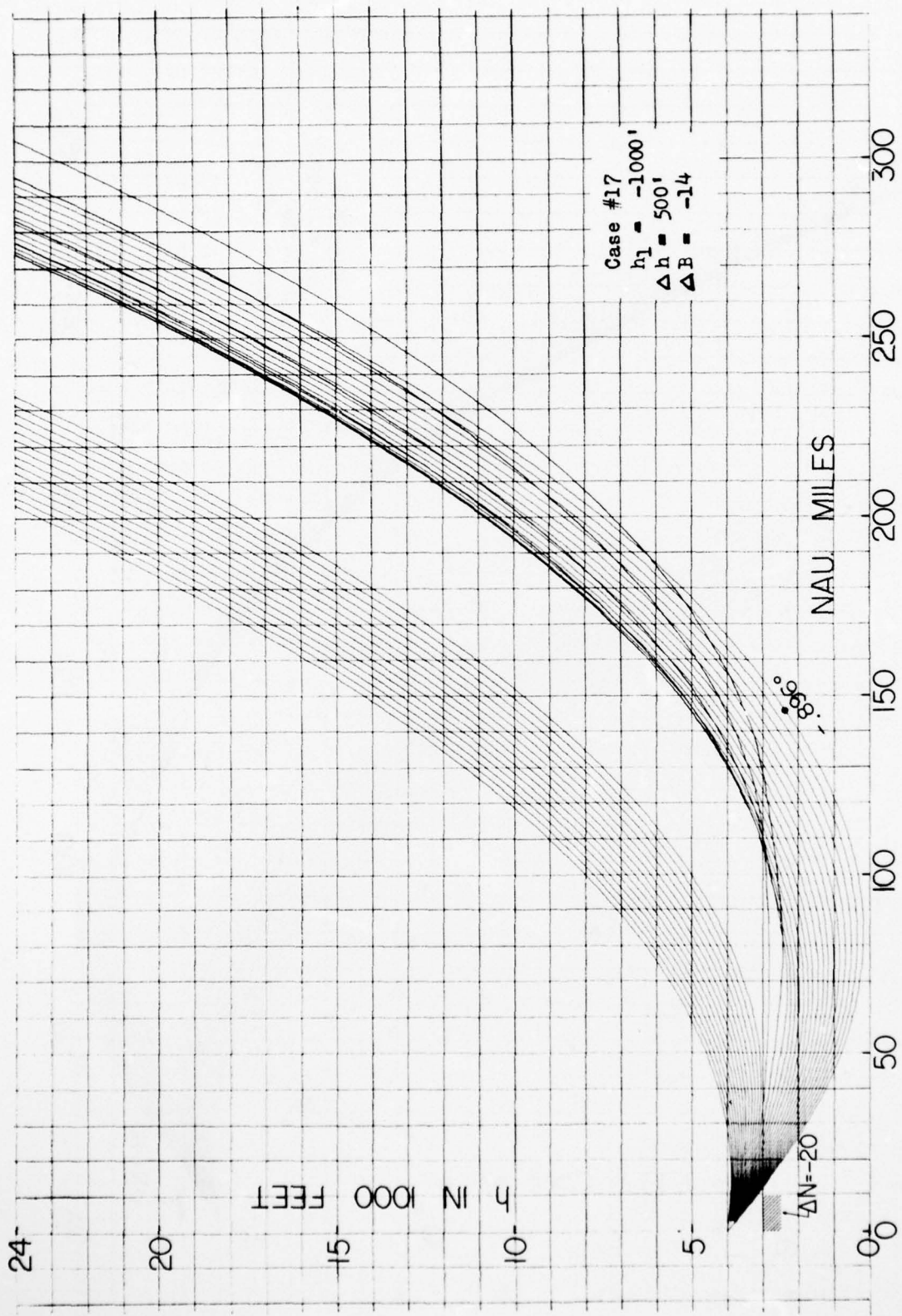


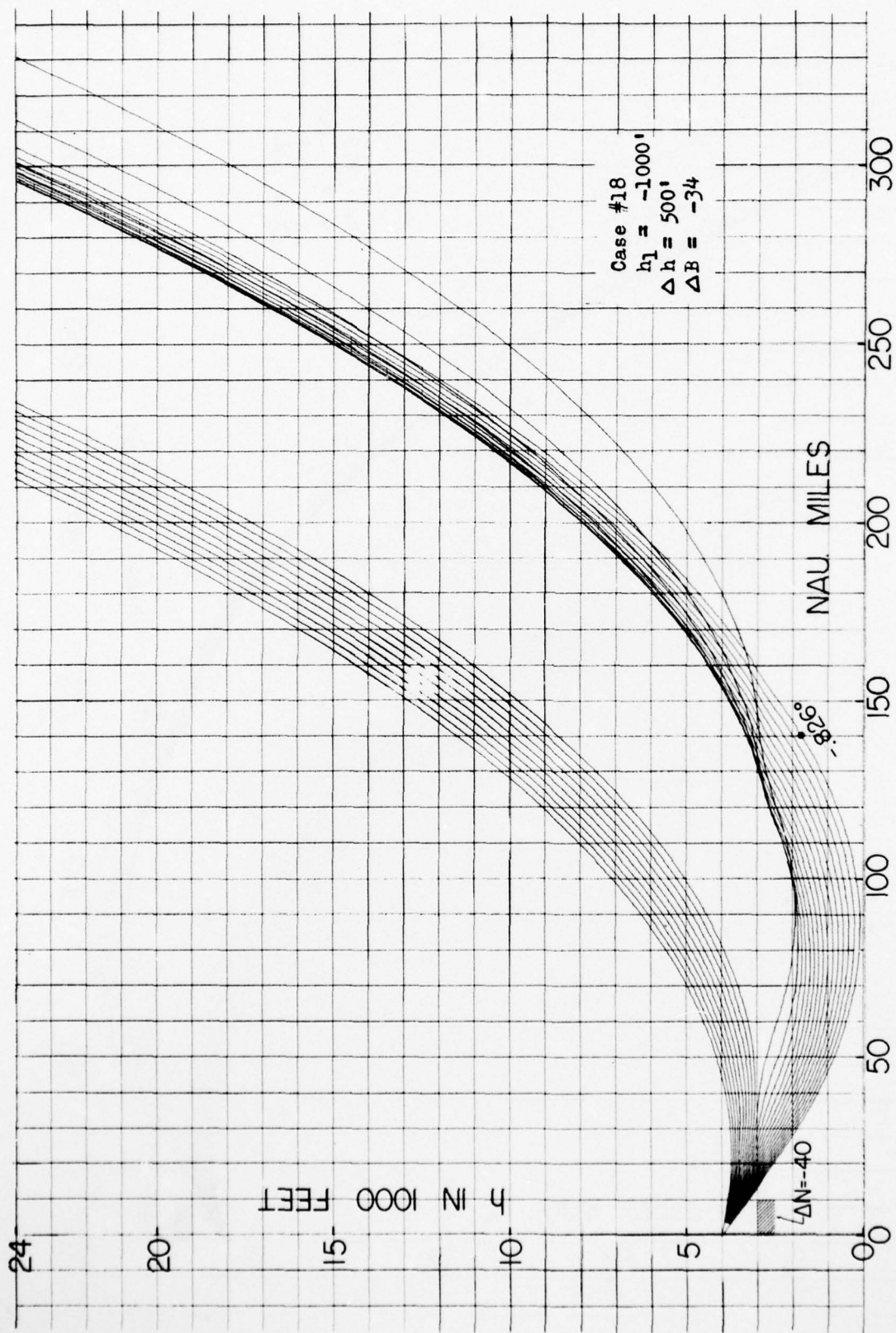


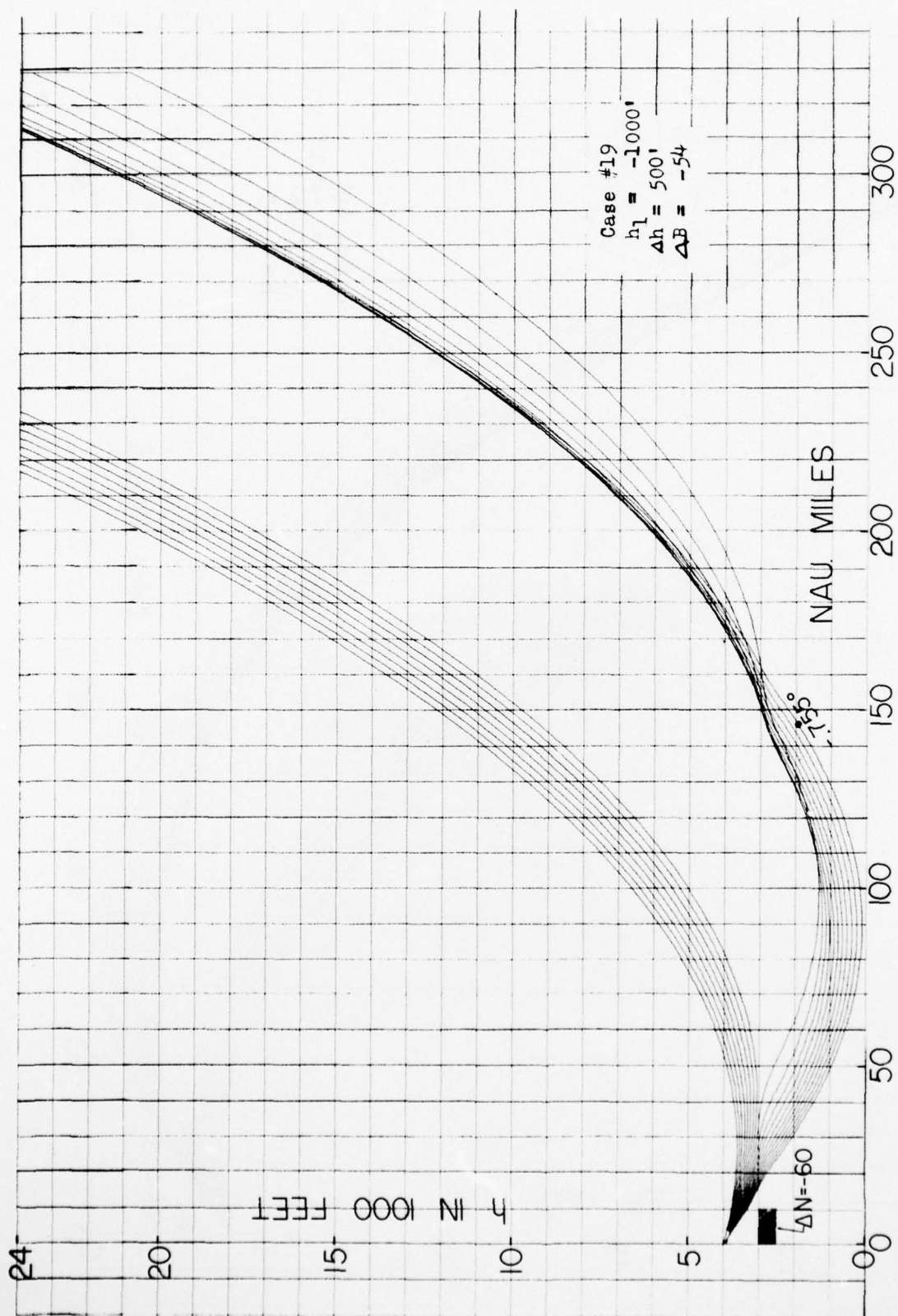


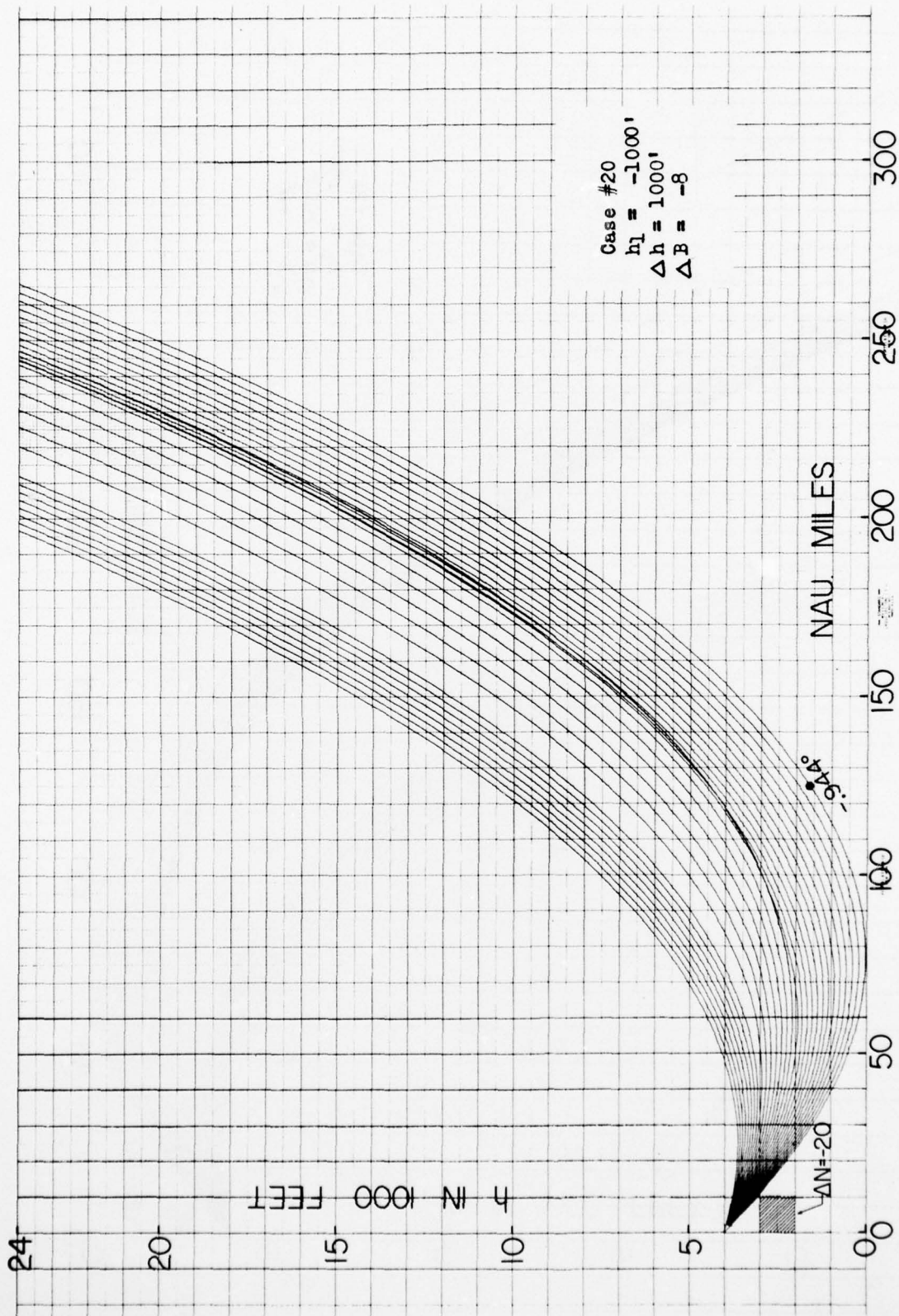


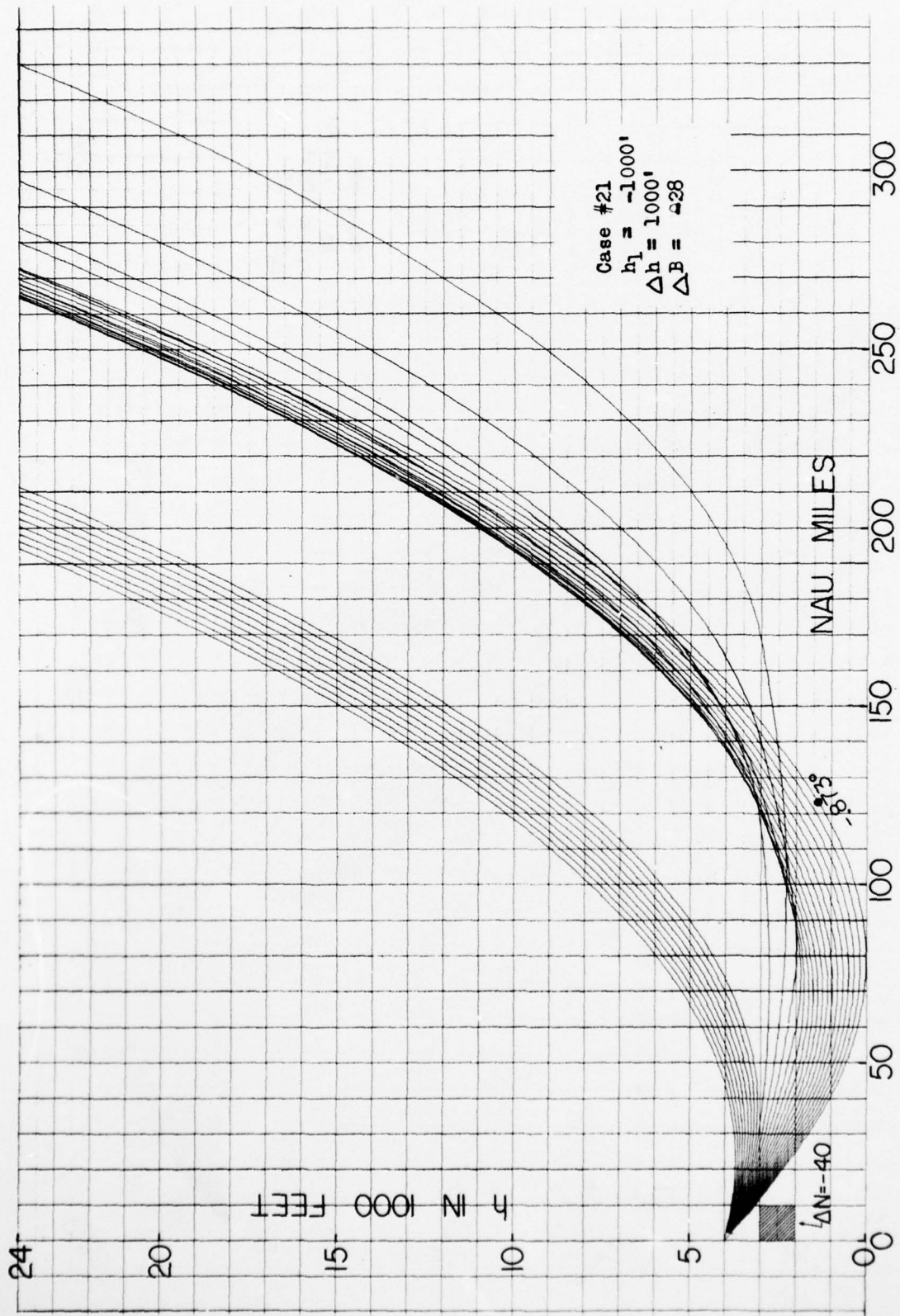


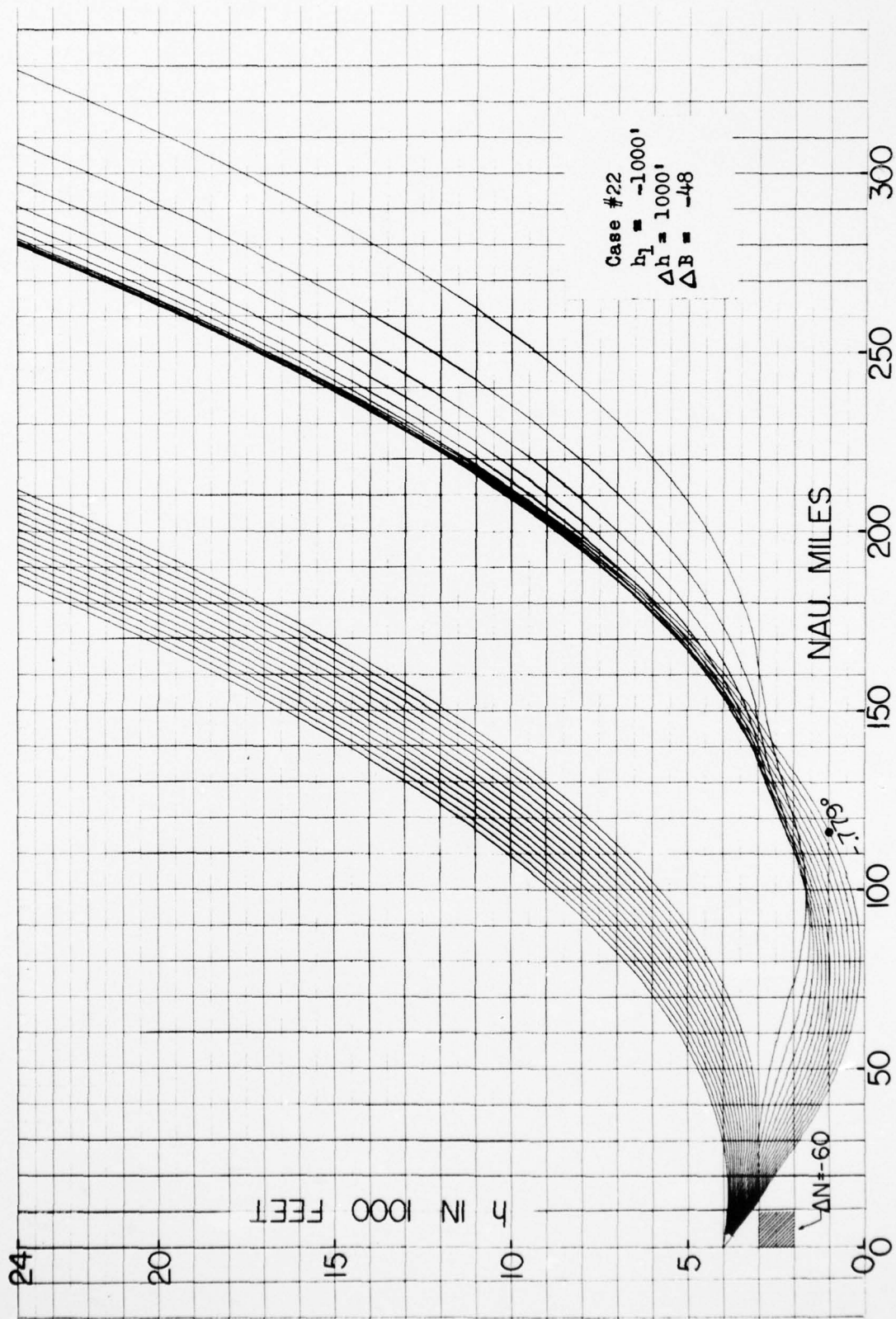












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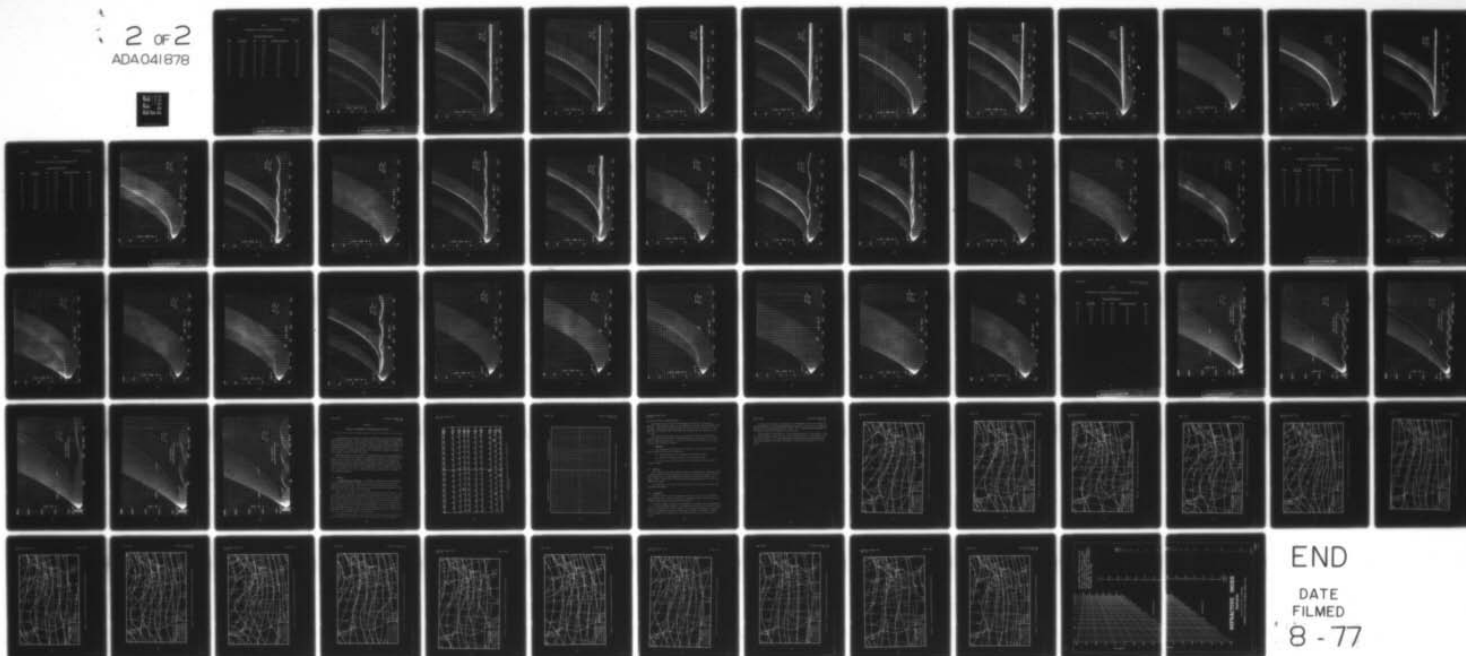
AIR WEATHER SERVICE SCOTT AFB ILL
ESTIMATING METEOROLOGICAL EFFECTS ON RADAR PROPAGATION. VOLUME --ETC(U)
MAR 65 W B MORELAND
AWS-TR-183-VOL-2

F/G 17/9

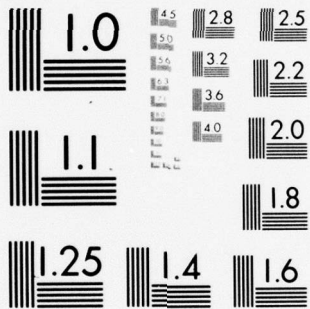
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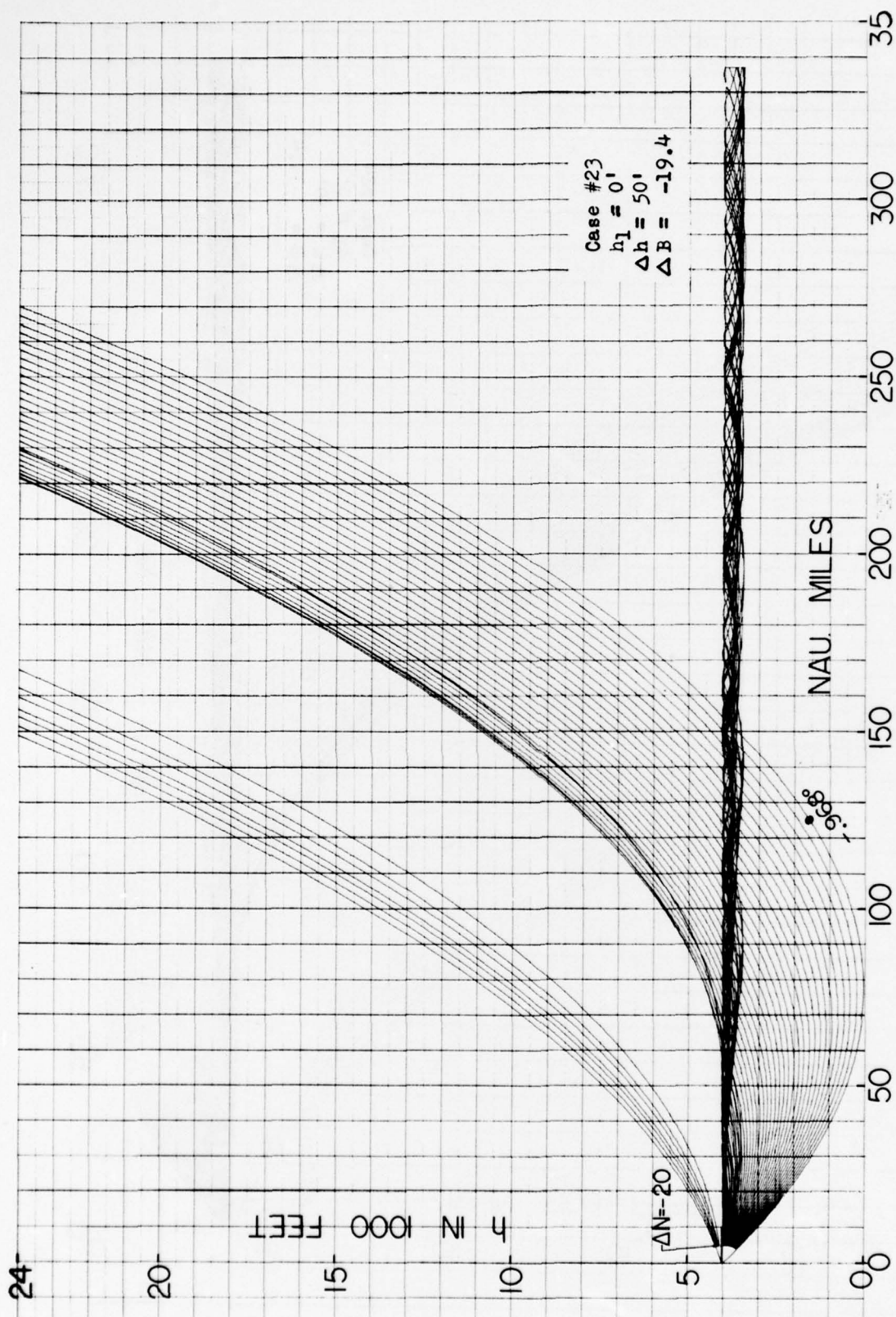


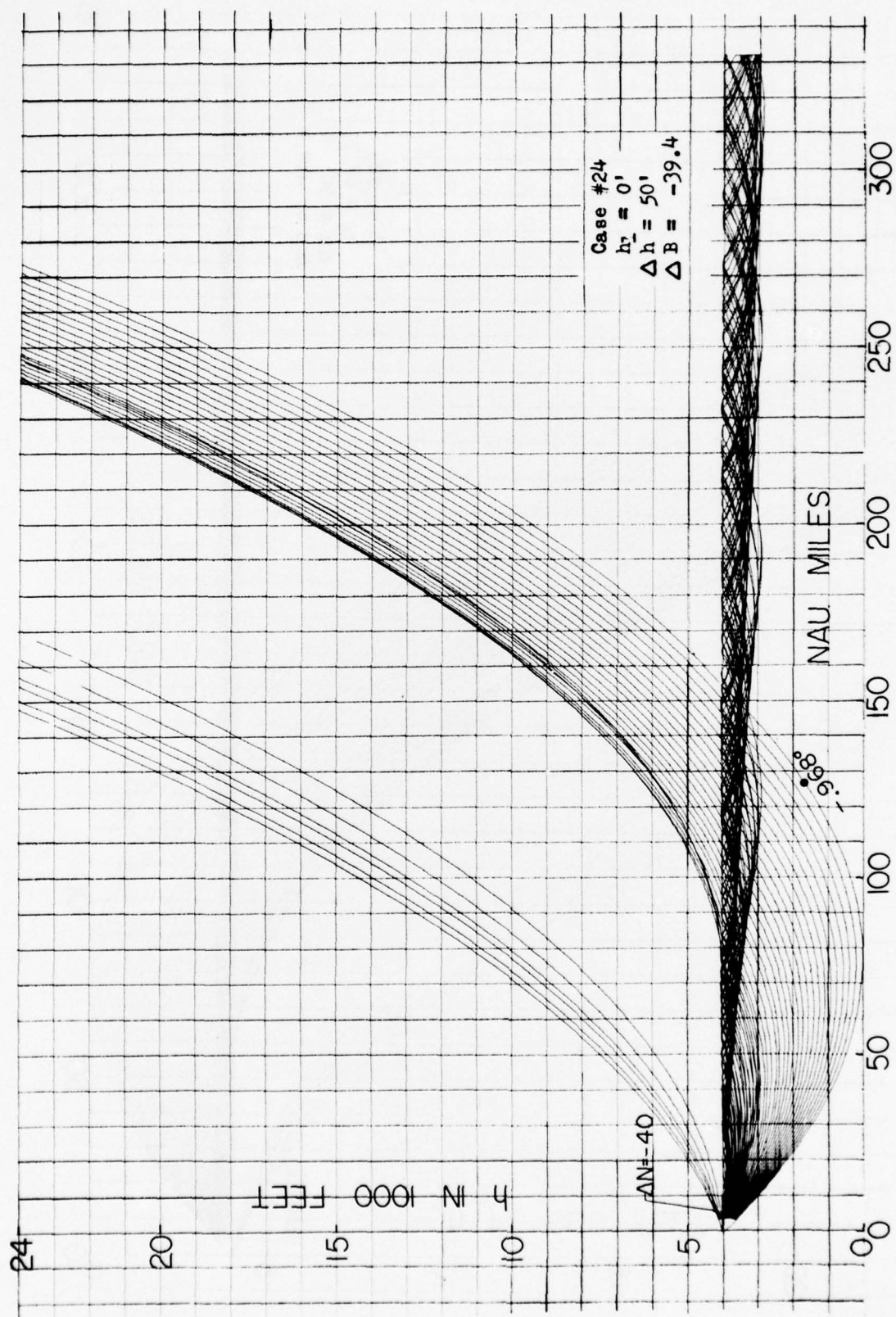
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NATIONAL BUREAU OF STANDARDS-1963-A

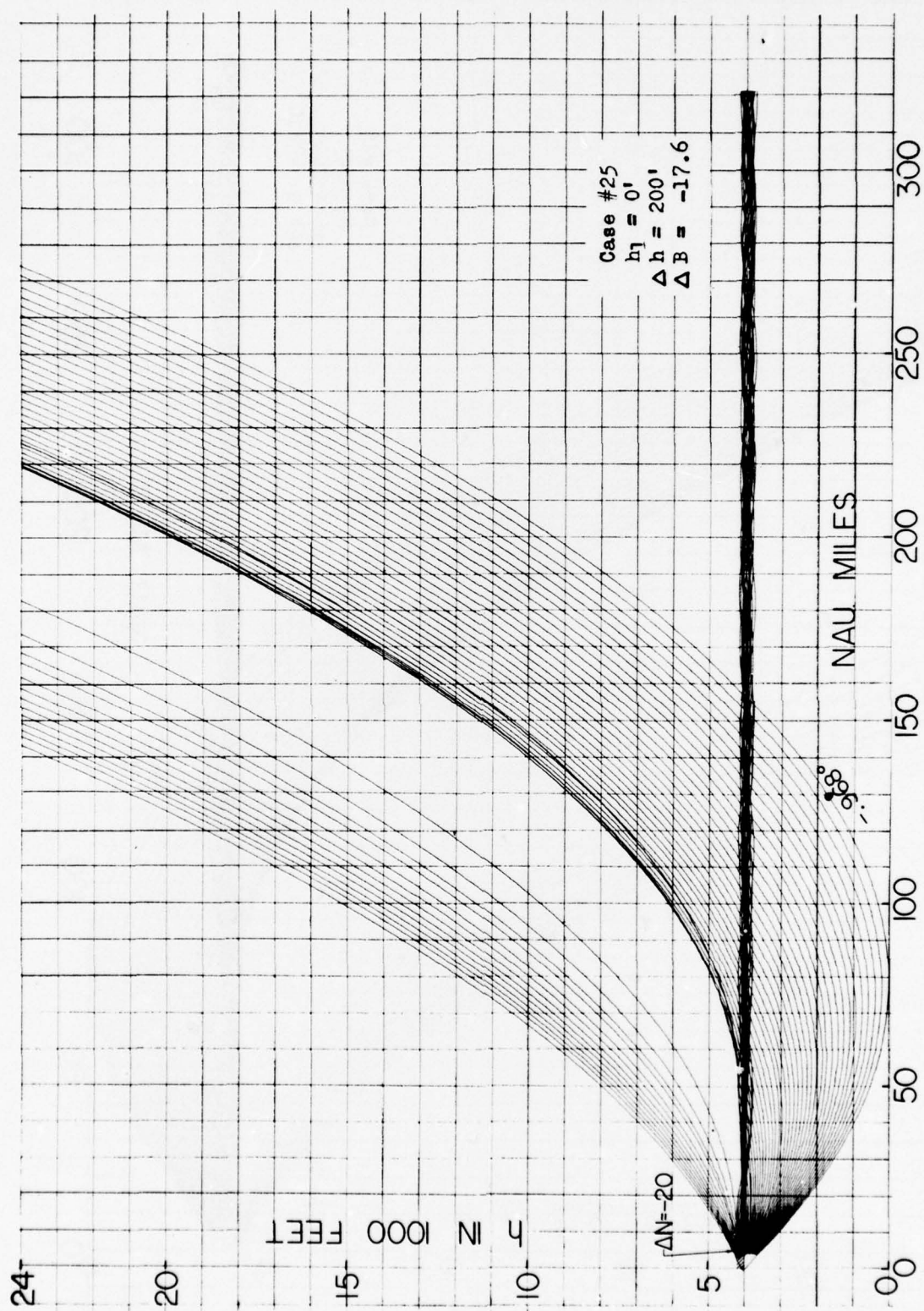
PART 3

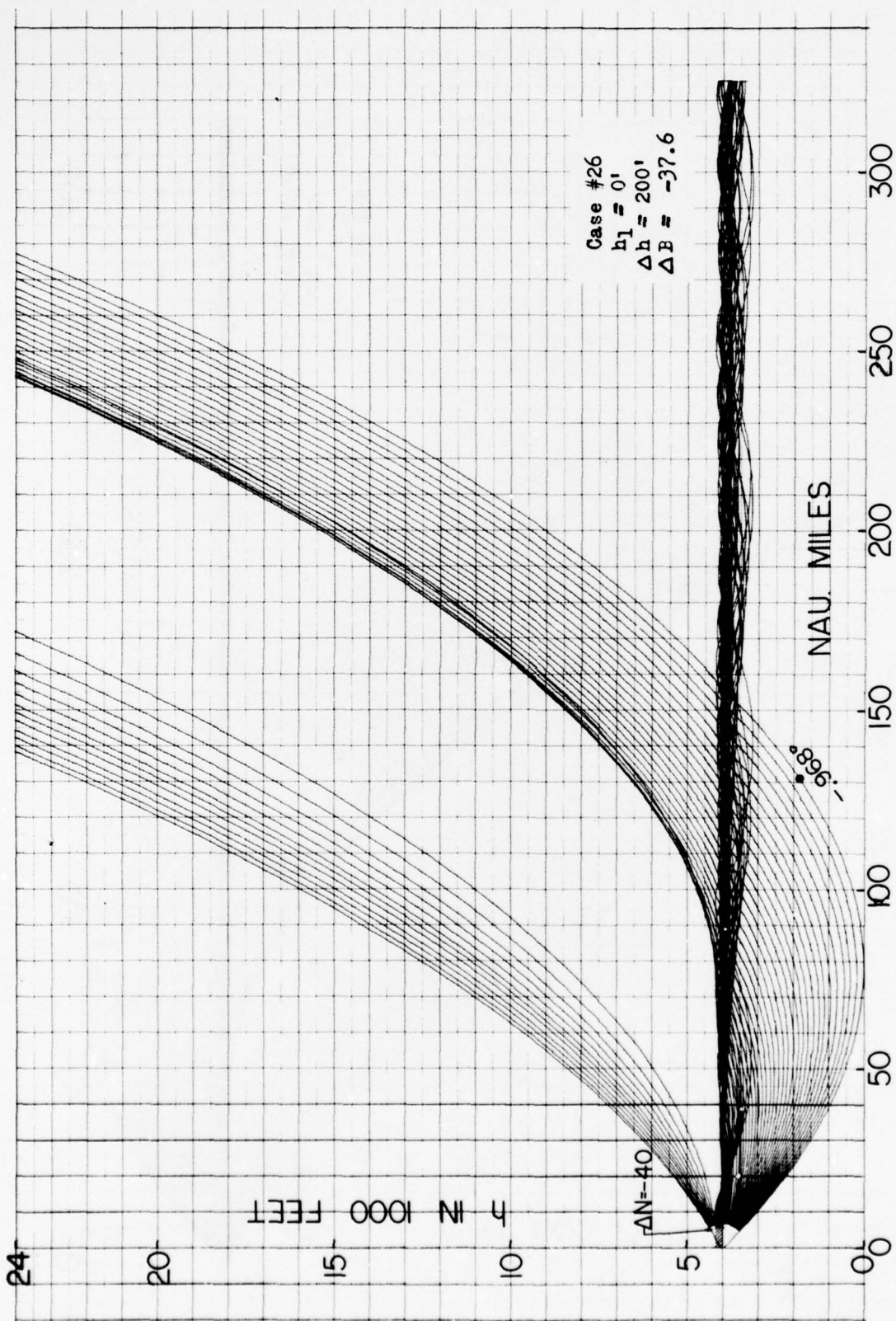
TRANSMITTER AT BASE OF SUPERSTANDARD LAYER

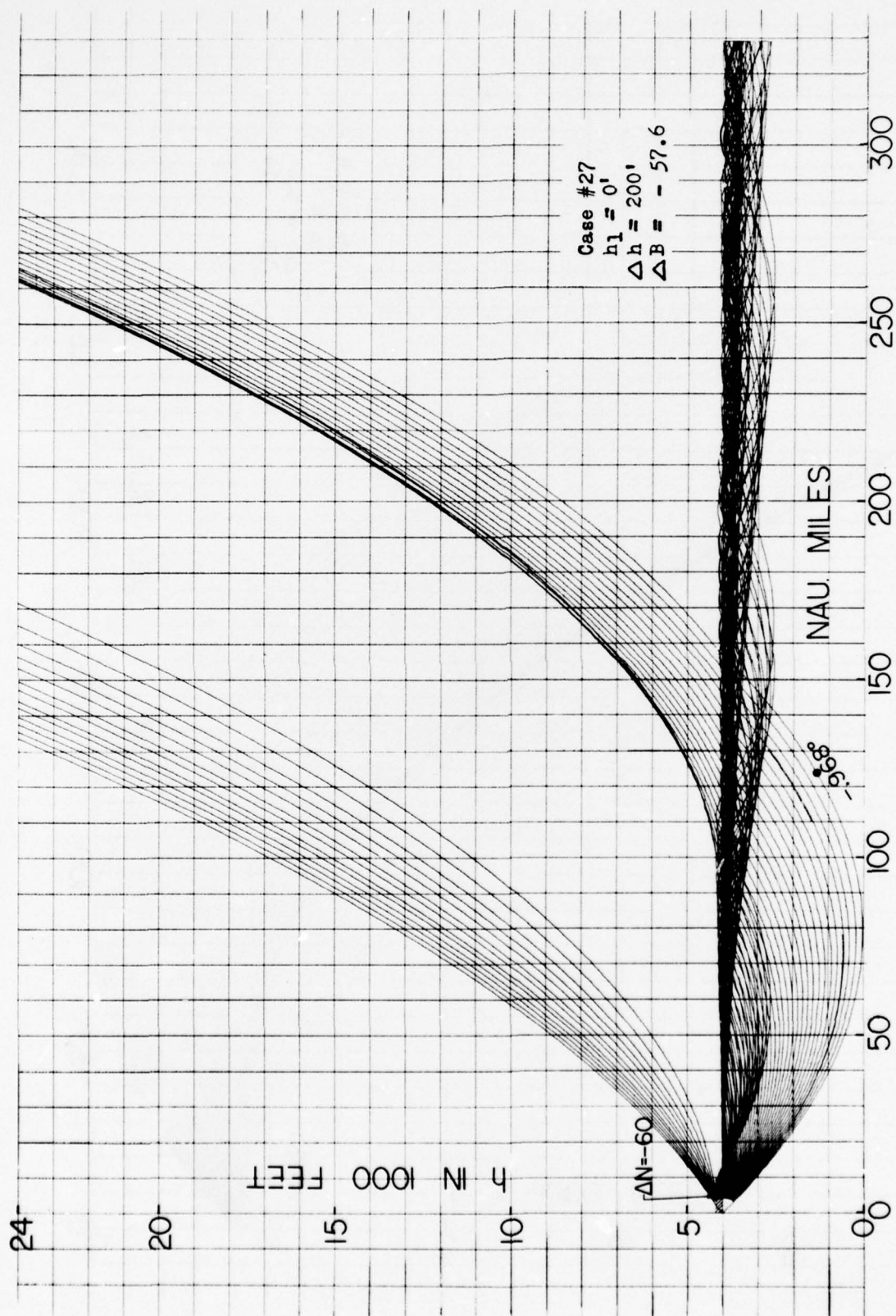
<u>Case</u>	<u>Layer Characteristics</u>				<u>Page</u>
	$h_T - h_B$ <u>Thickness</u>	<u>-ΔN</u>	<u>-ΔB</u>	<u>Trapping Intensity</u>	
23	50'	20	19.4	Yes	91
24	50'	40	39.4	Yes	92
25	200'	20	17.6	Yes	93
26	200'	40	37.6	Yes	94
27	200'	60	57.6	Yes	95
28	500'	20	14	No	96
29	500'	40	34	Yes	97
30	500'	60	54	Yes	98
31	1000'	20	8	No	99
32	1000'	40	28	No	100
33	1000'	60	48	Yes	101

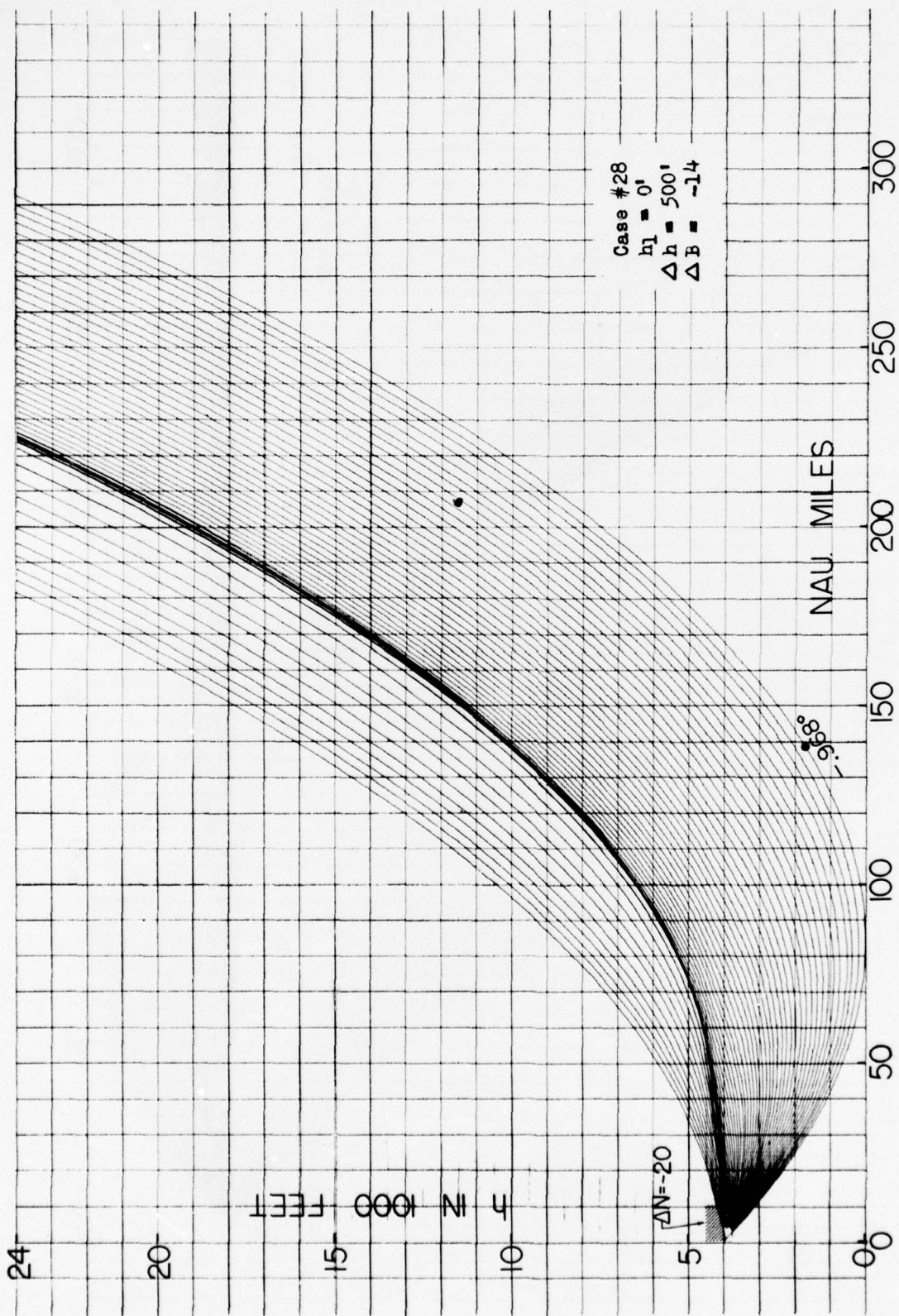


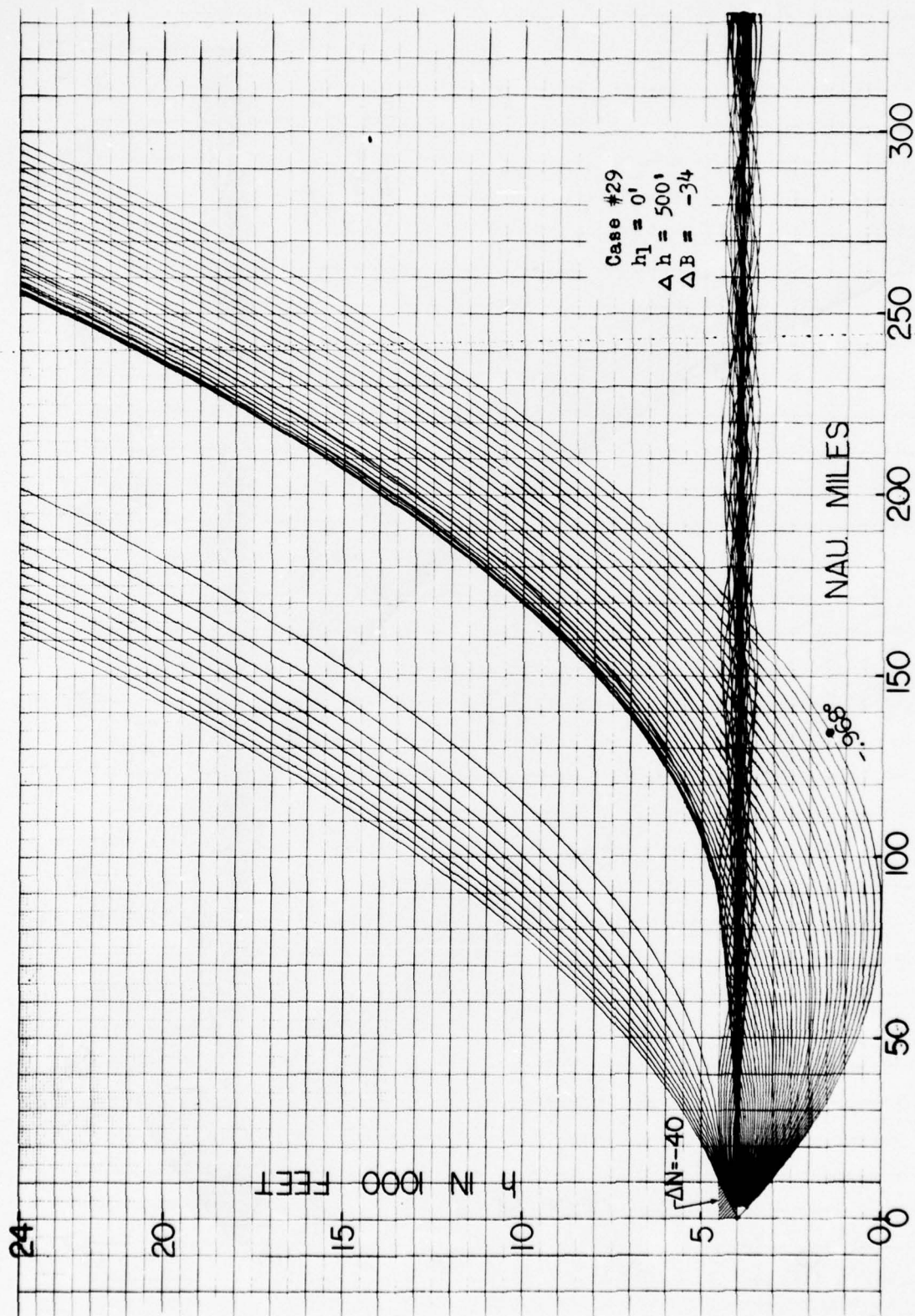


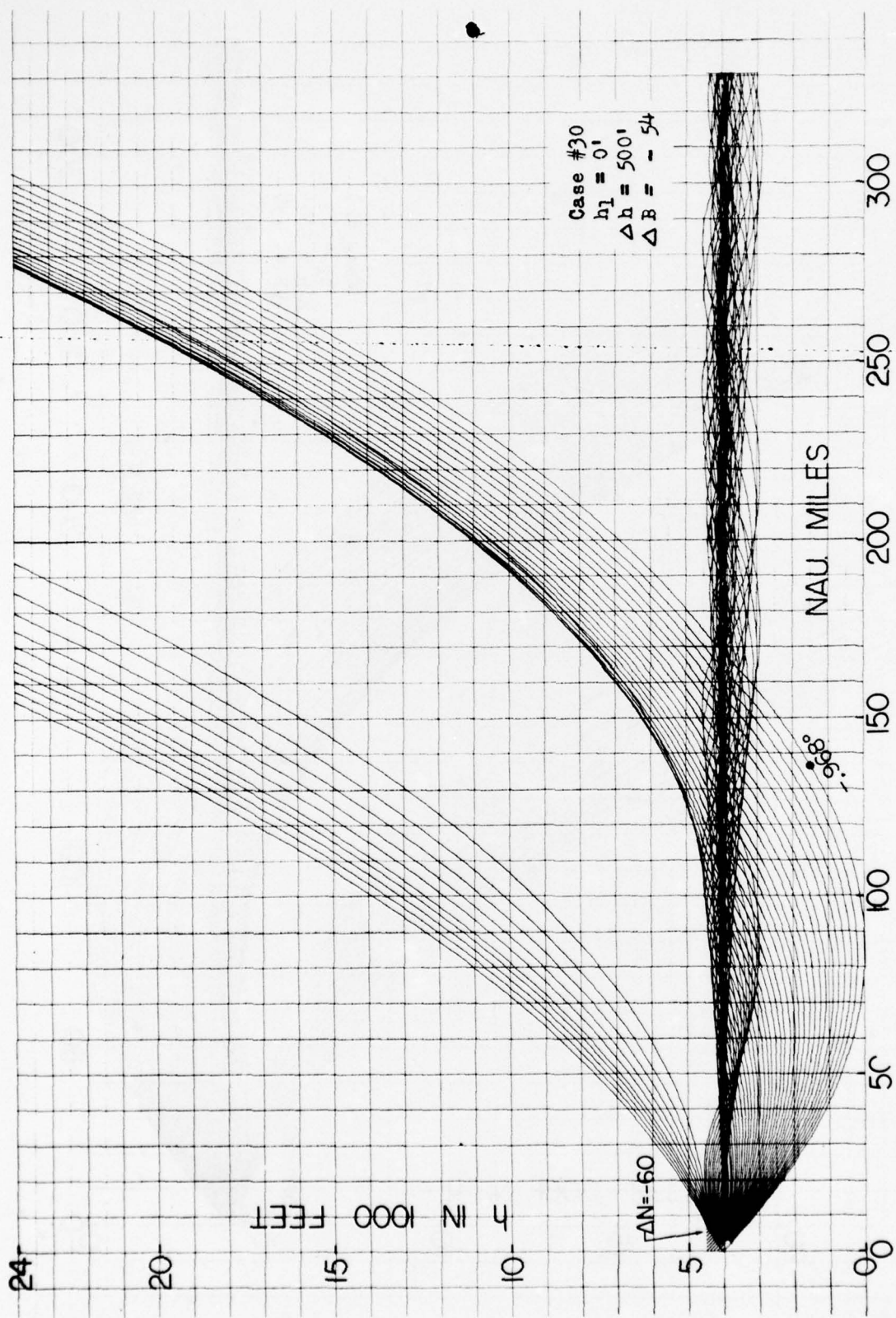


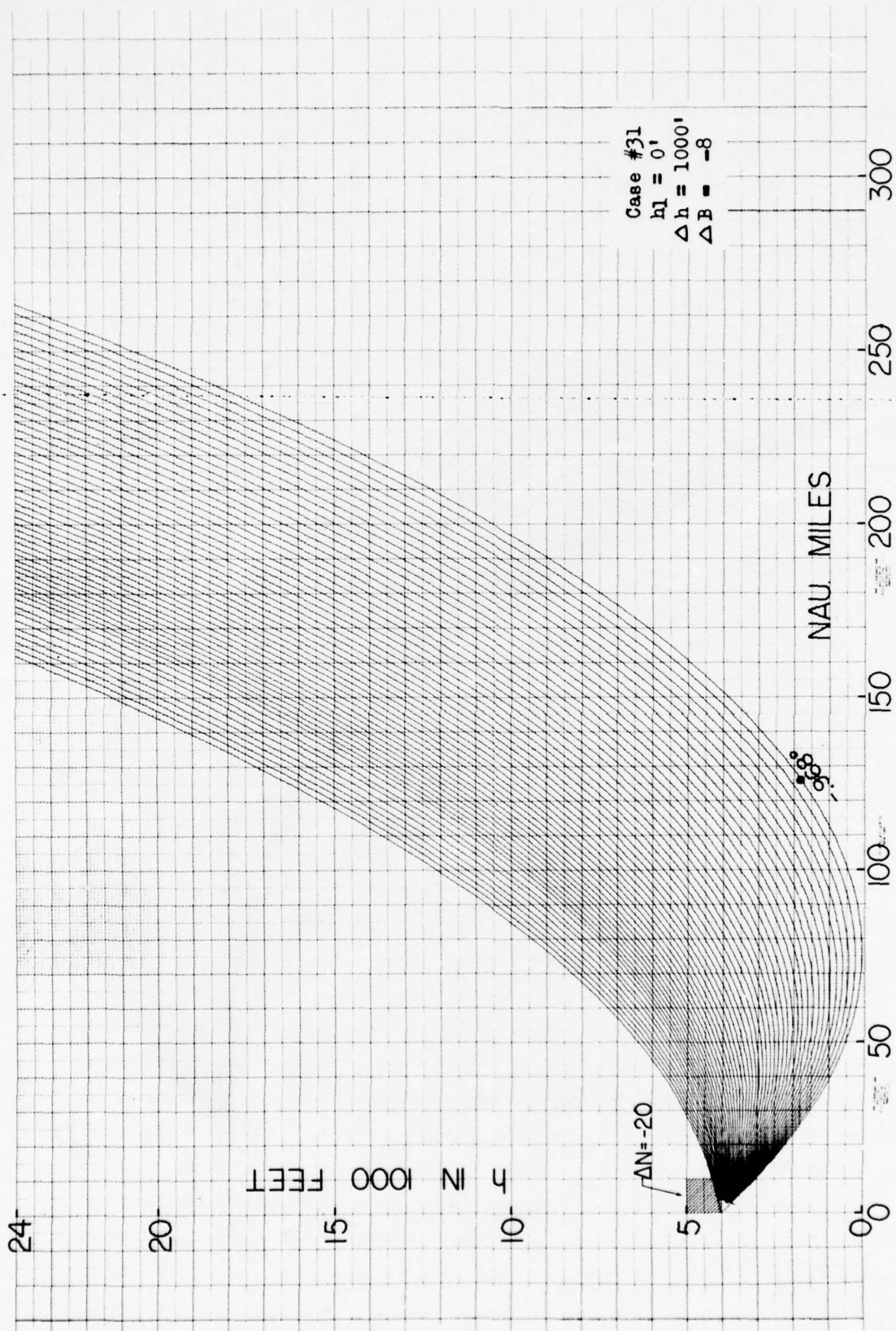


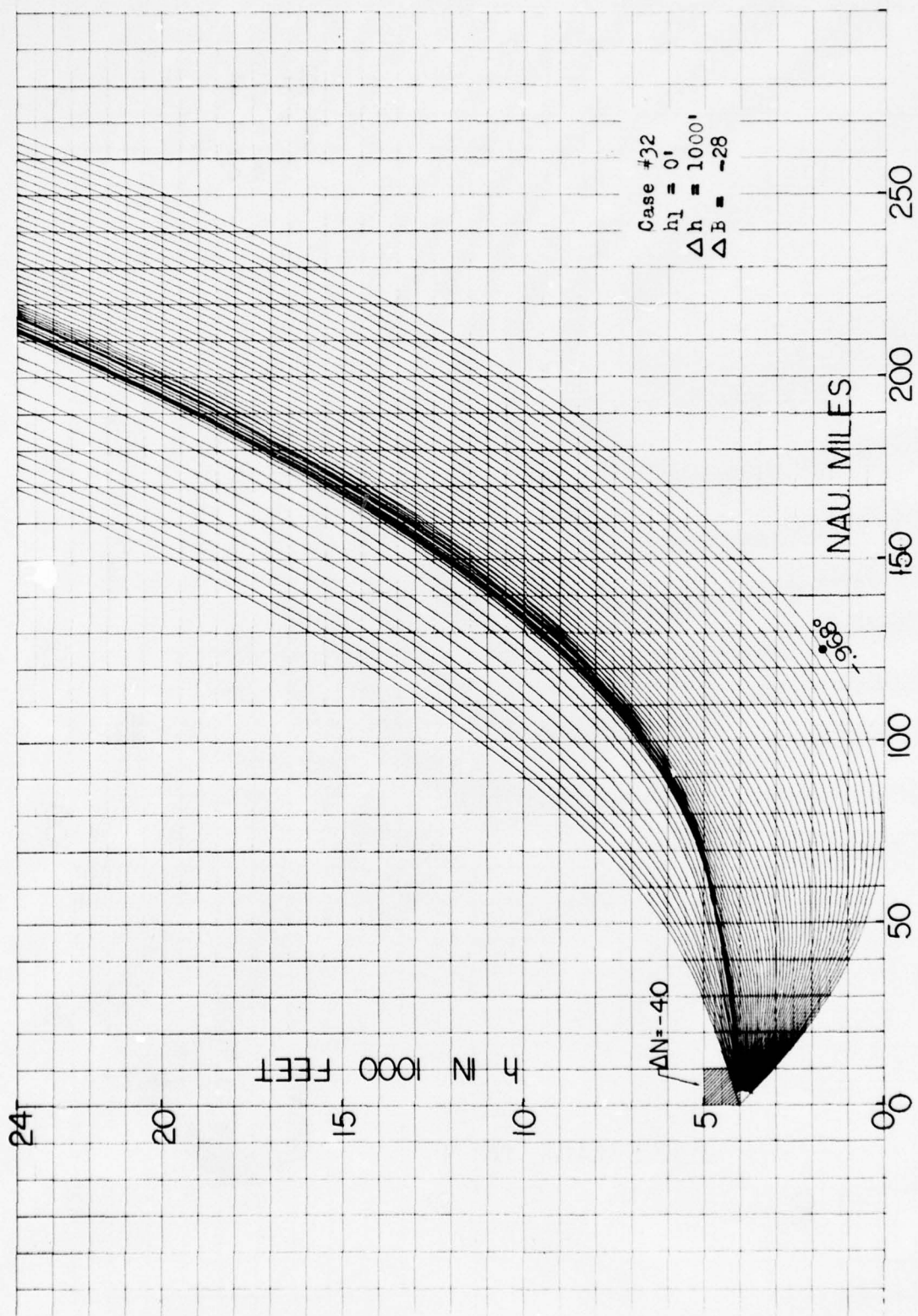


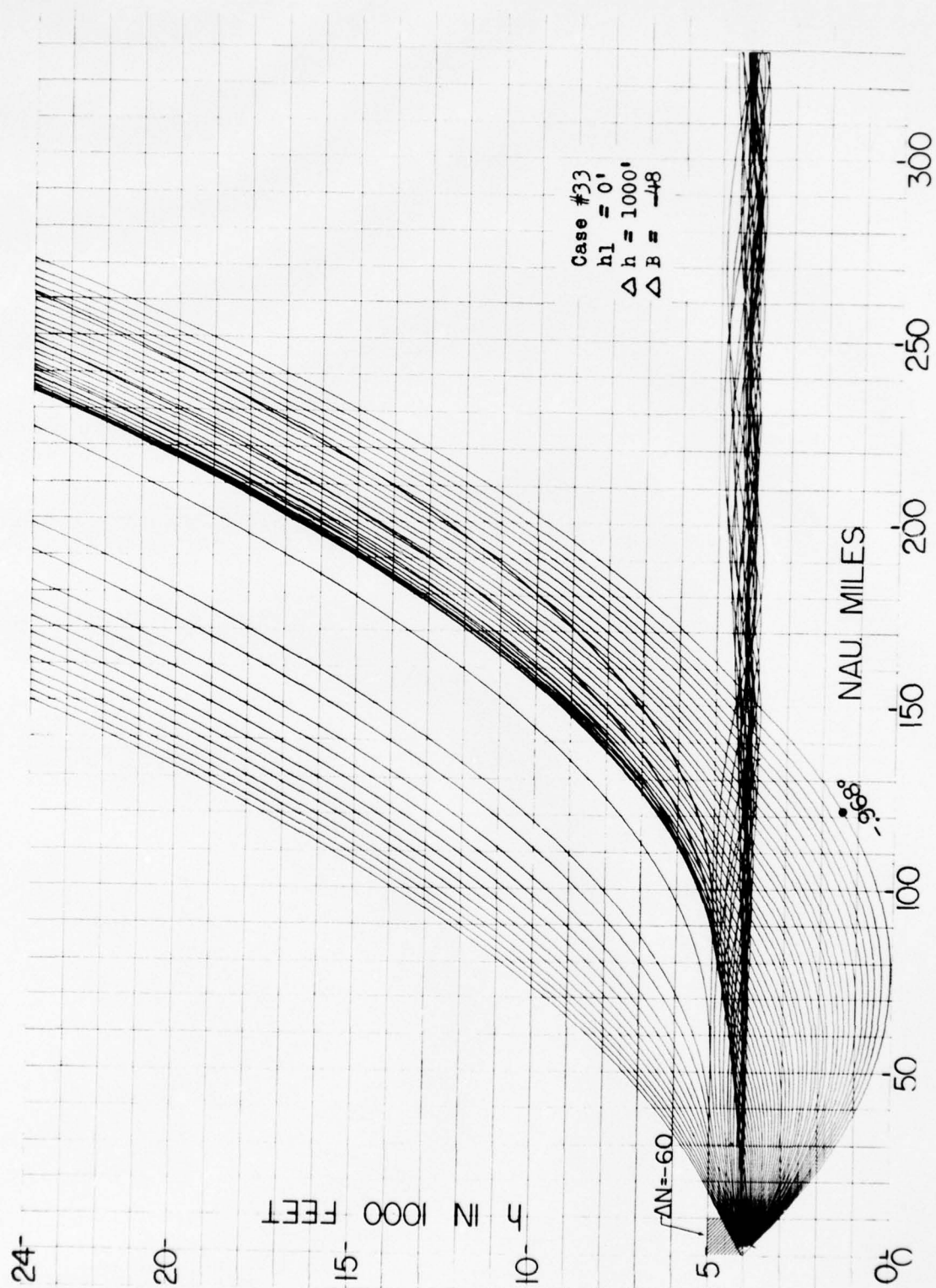










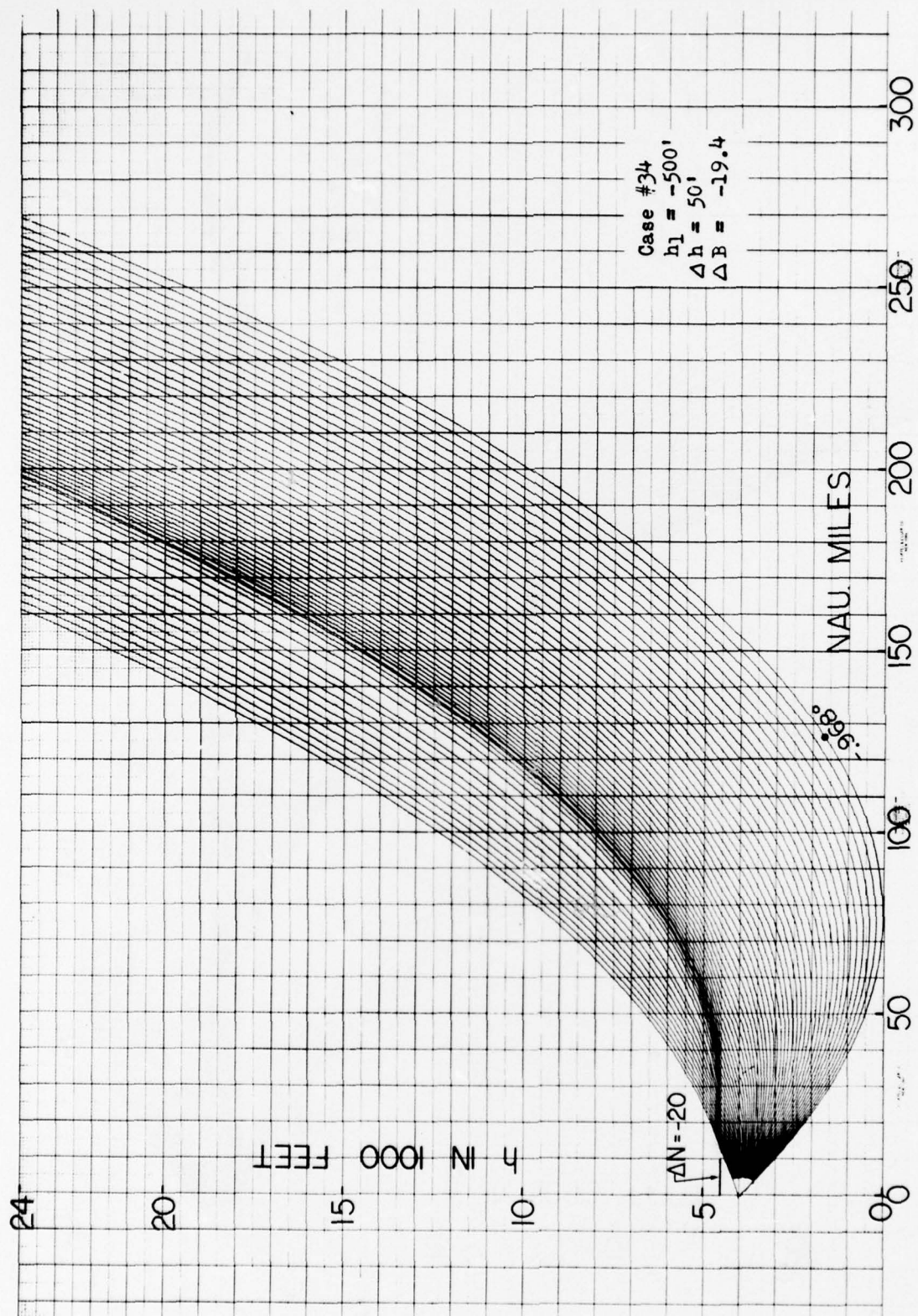


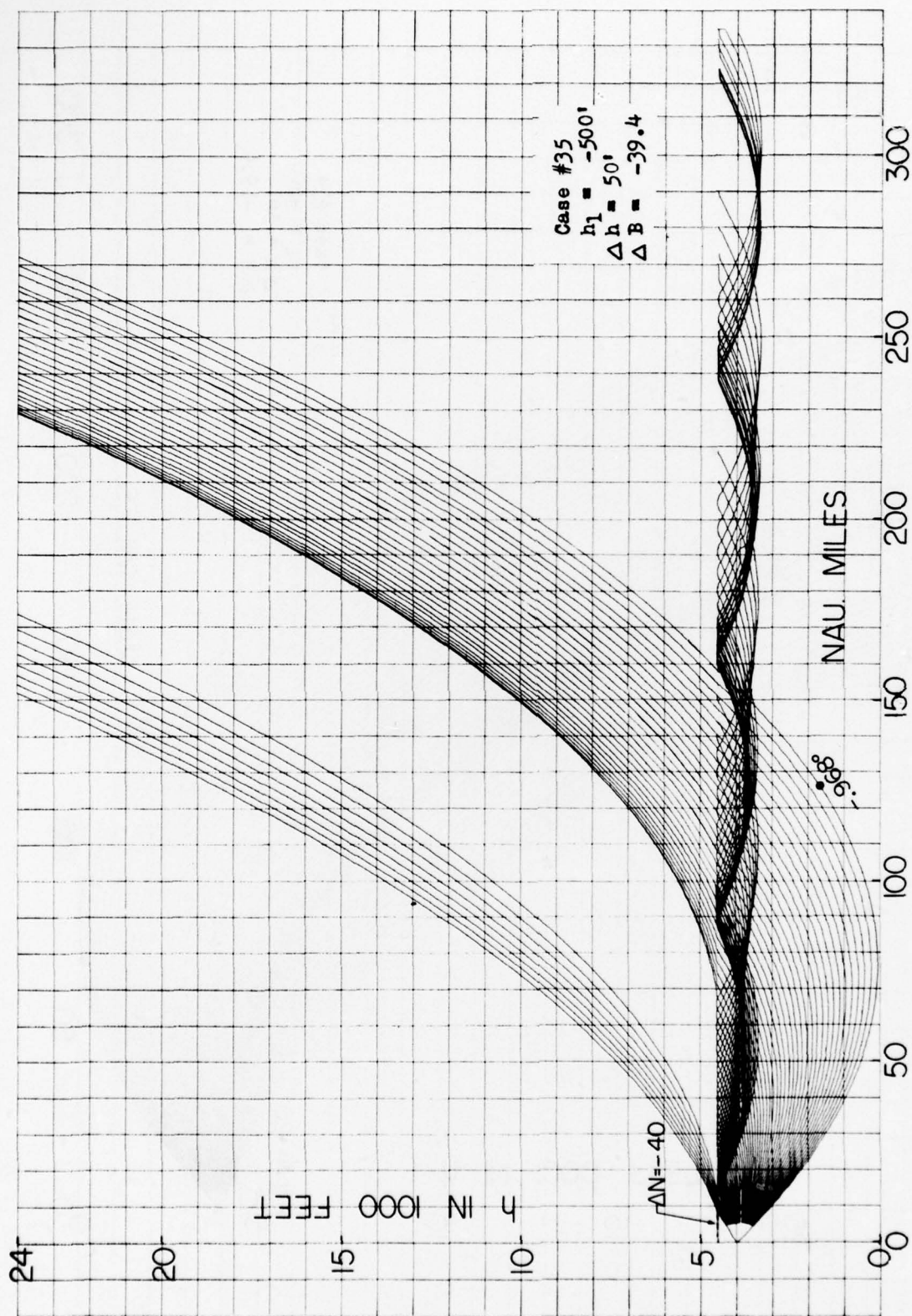
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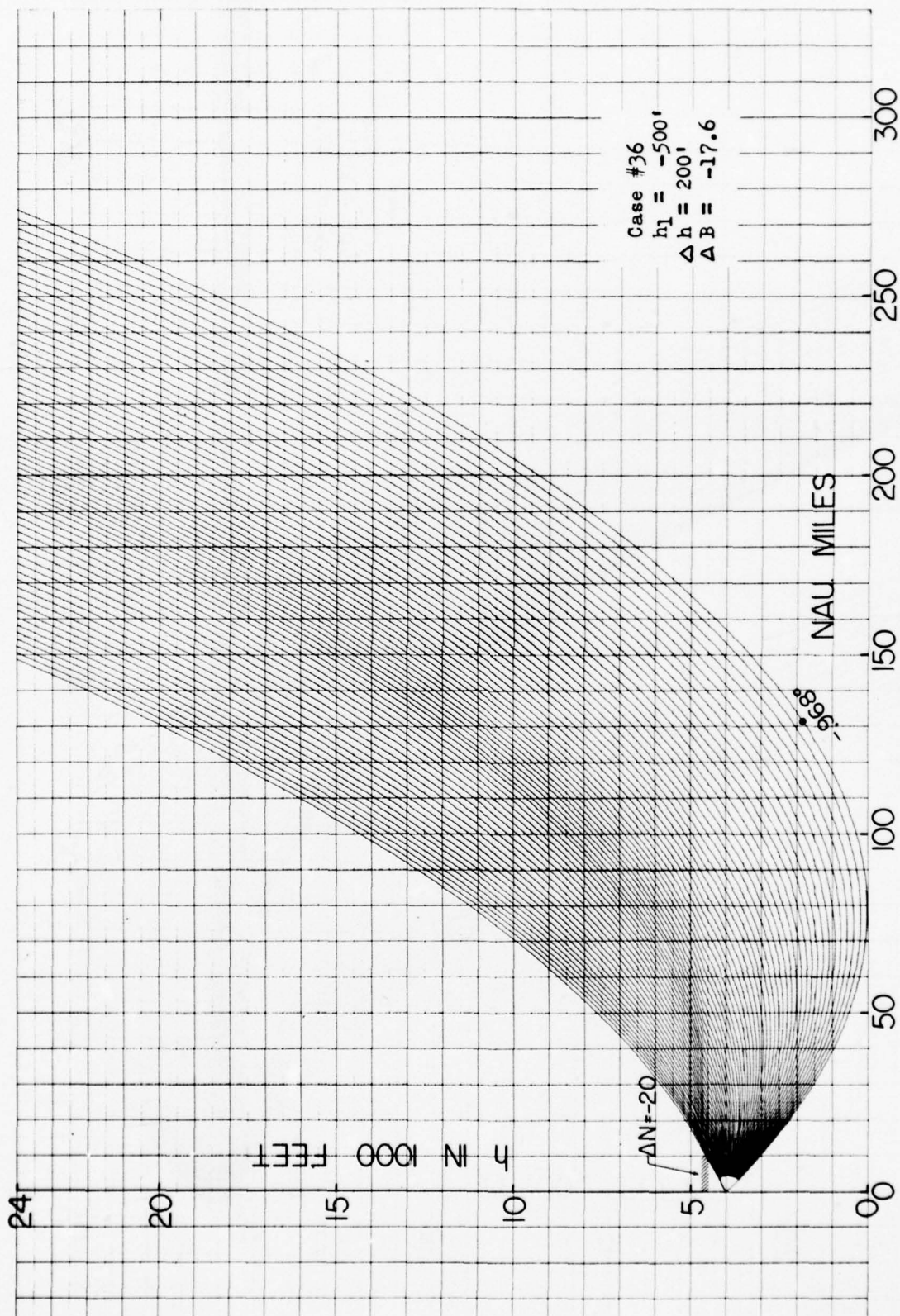
TRANSMITTER 500 FEET BELOW SUPERSTANDARD LAYER

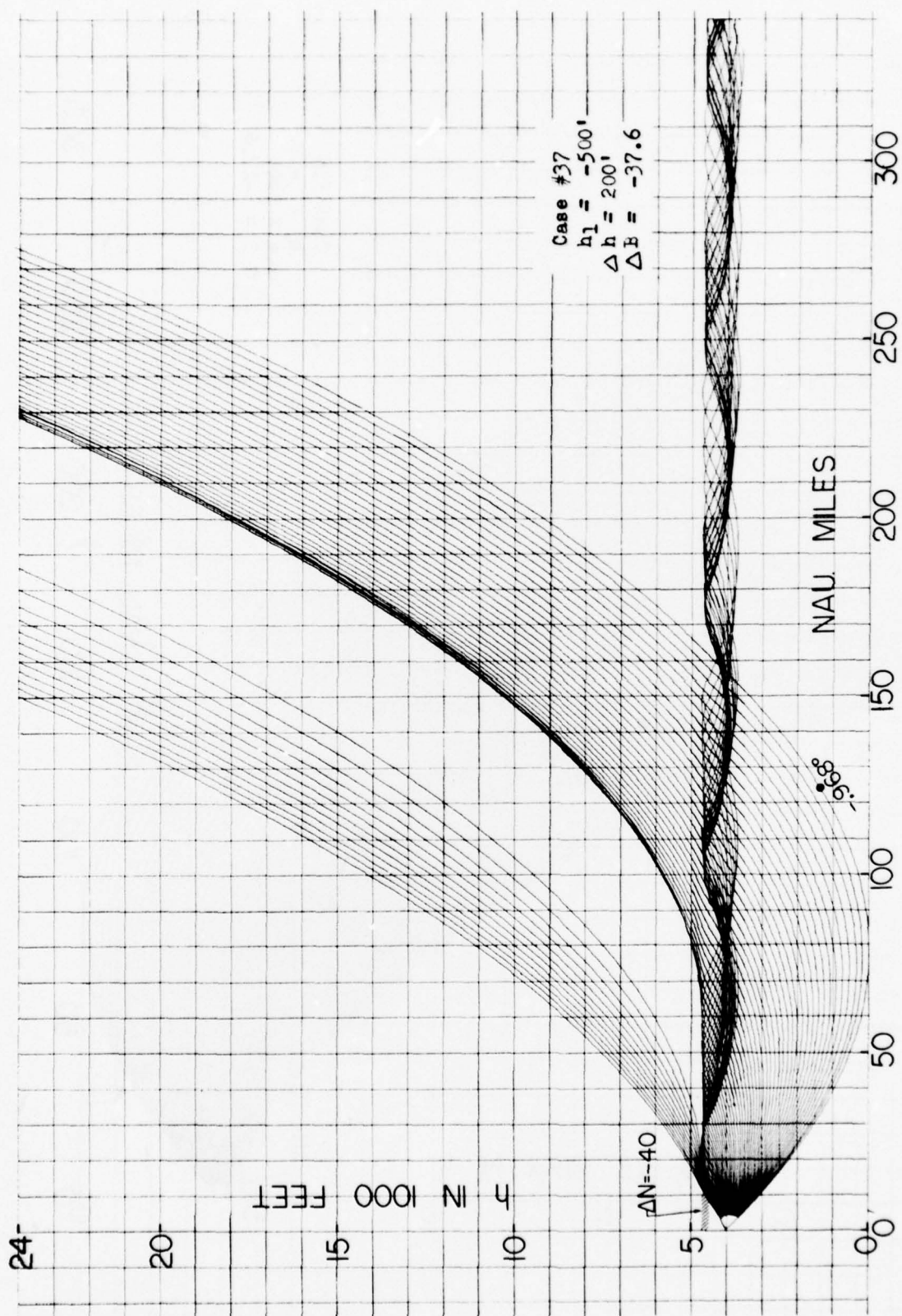
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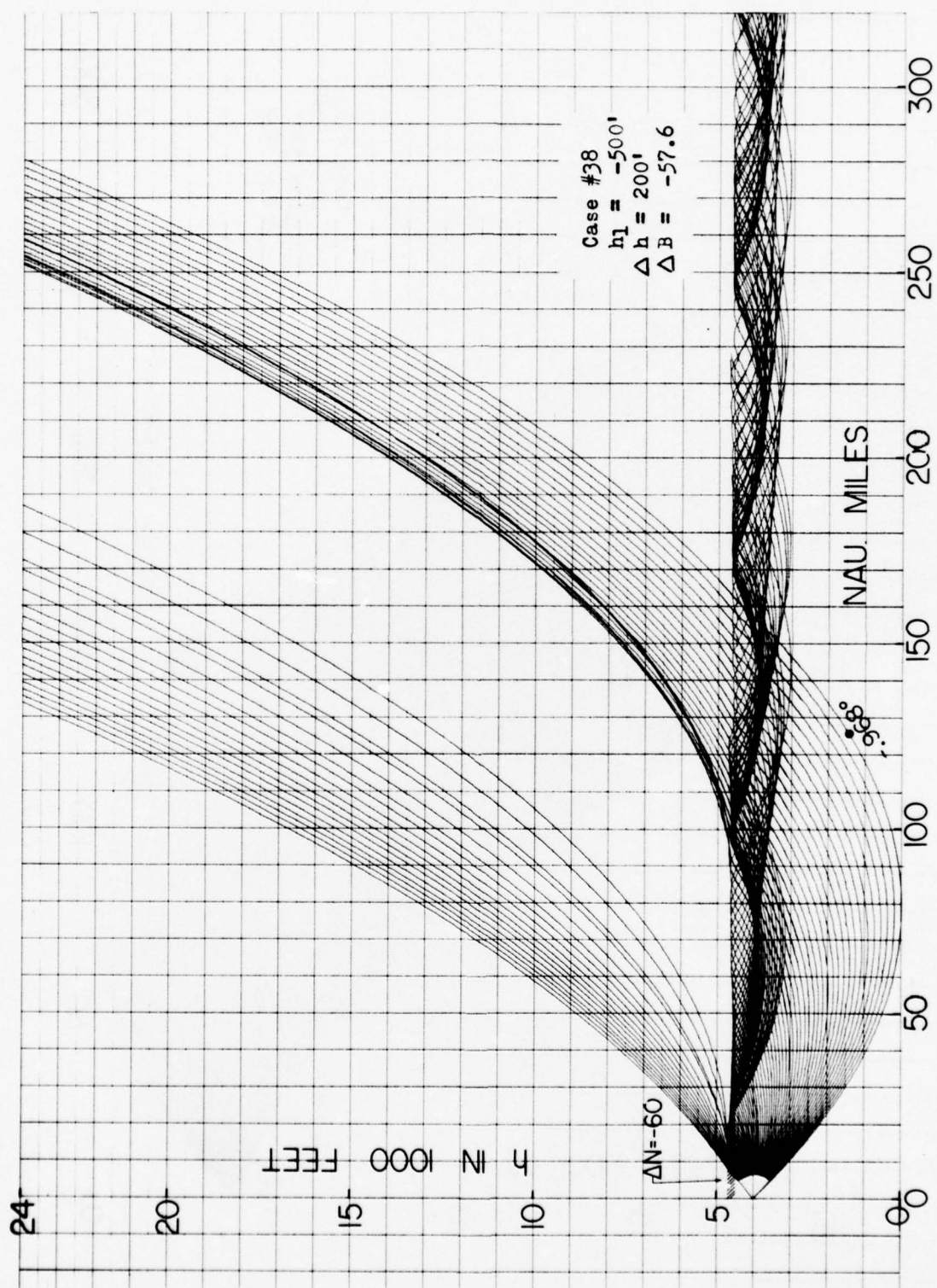
<u>Case</u>	$h_T - h_B$ <u>Thickness</u>	<u>$-\Delta N$</u>	<u>$-\Delta B$</u>	<u>Trapping Intensity</u>	<u>Page</u>
34	50'	20	19.4	Yes	105
35	50'	40	39.4	Yes	106
36	200'	20	17.6	Yes	107
37	200'	40	37.6	Yes	108
38	200'	60	57.6	Yes	109
39	500'	20	14	No	110
40	500'	40	34	Yes	111
41	500'	60	54	Yes	112
42	1000'	20	8	No	113
43	1000'	40	28	No	114
44	1000'	60	48	Yes	115

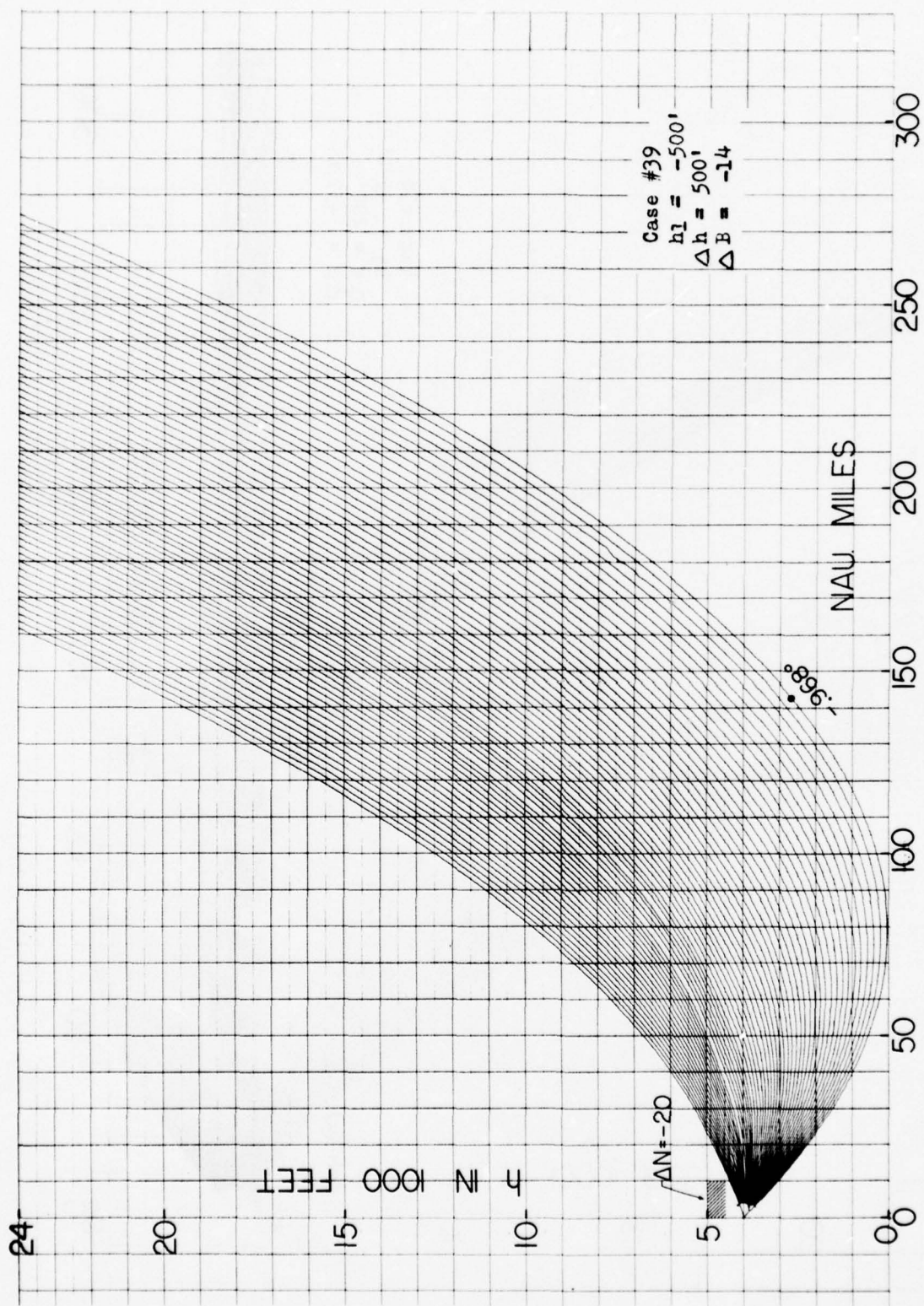


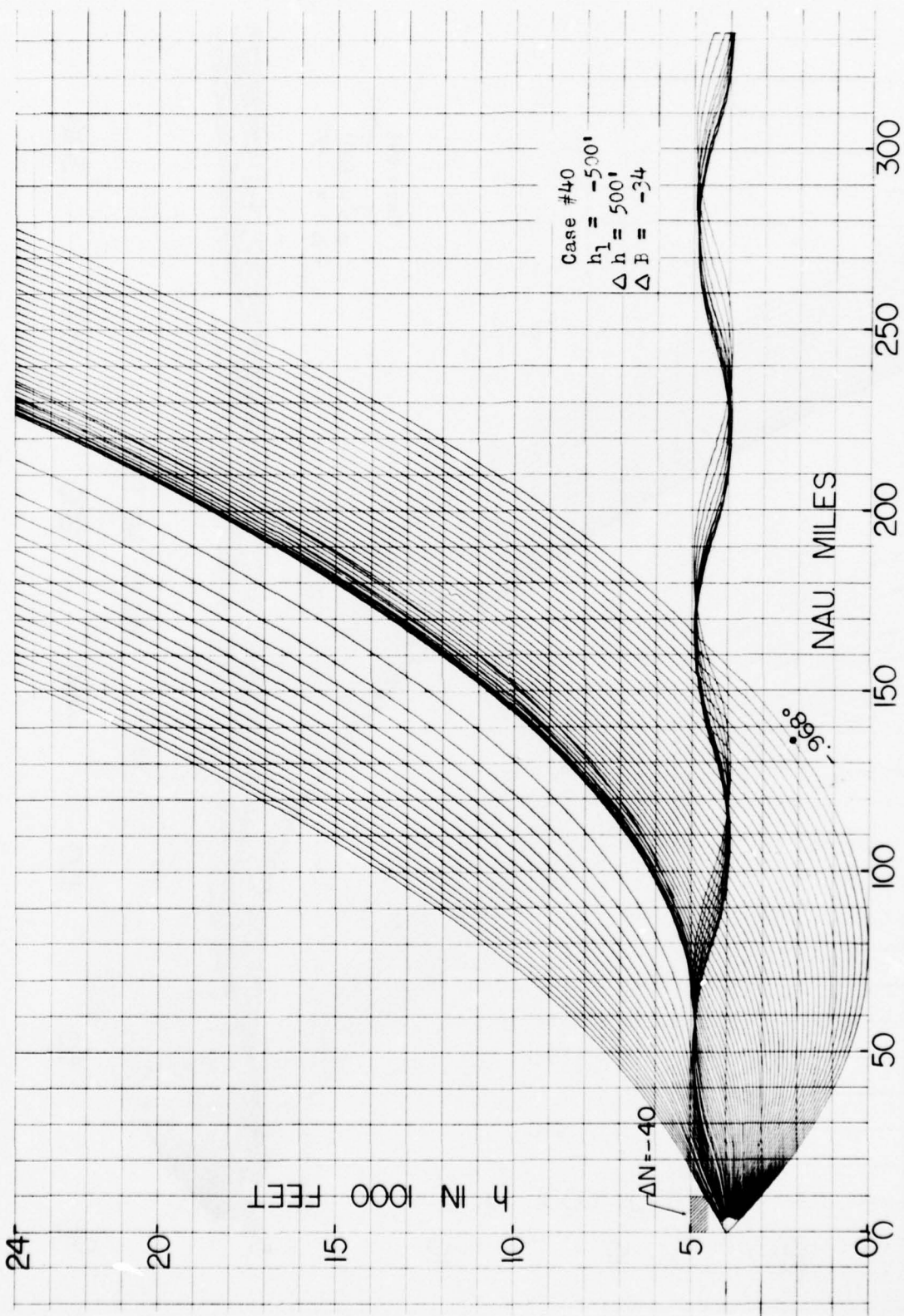


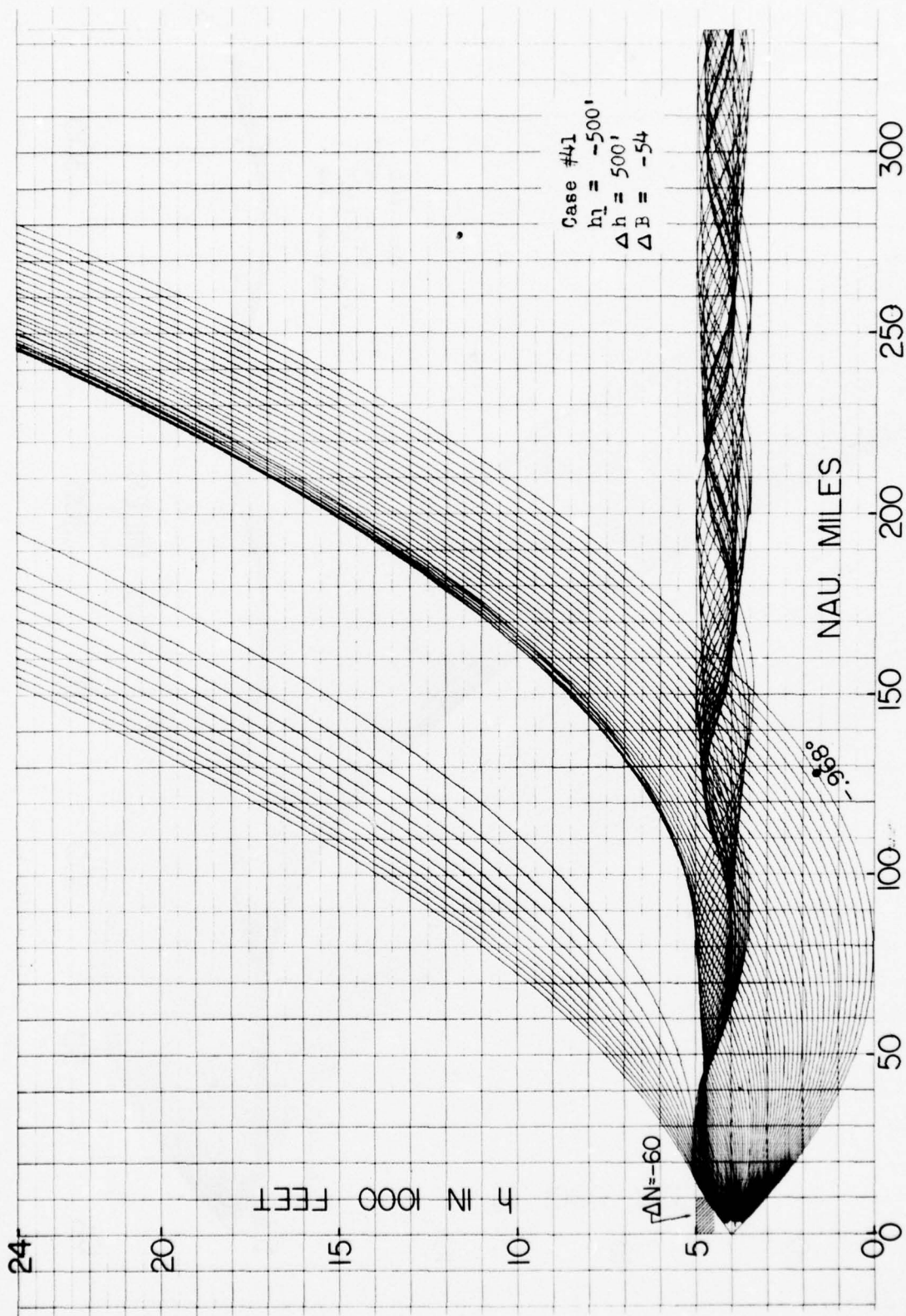


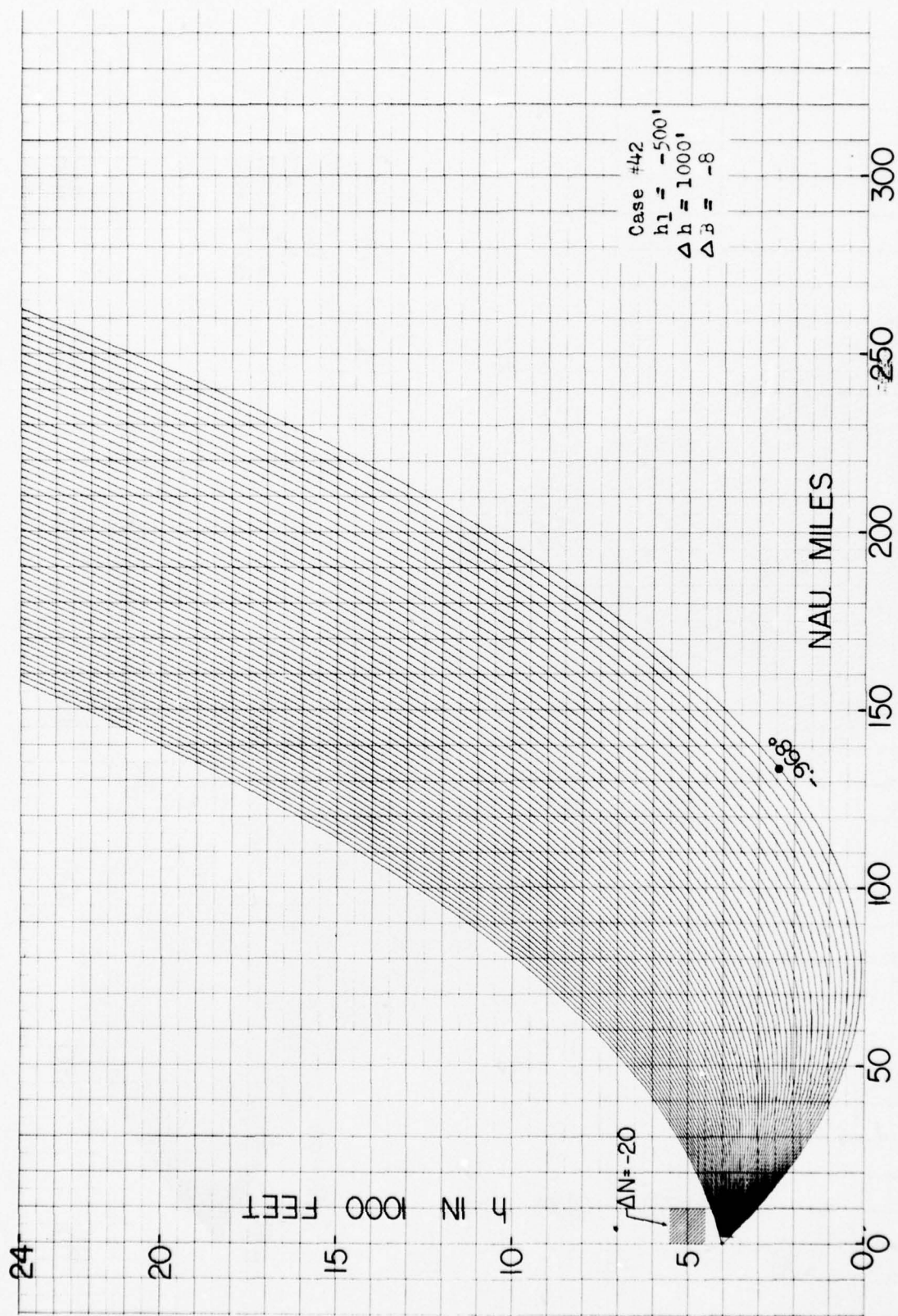


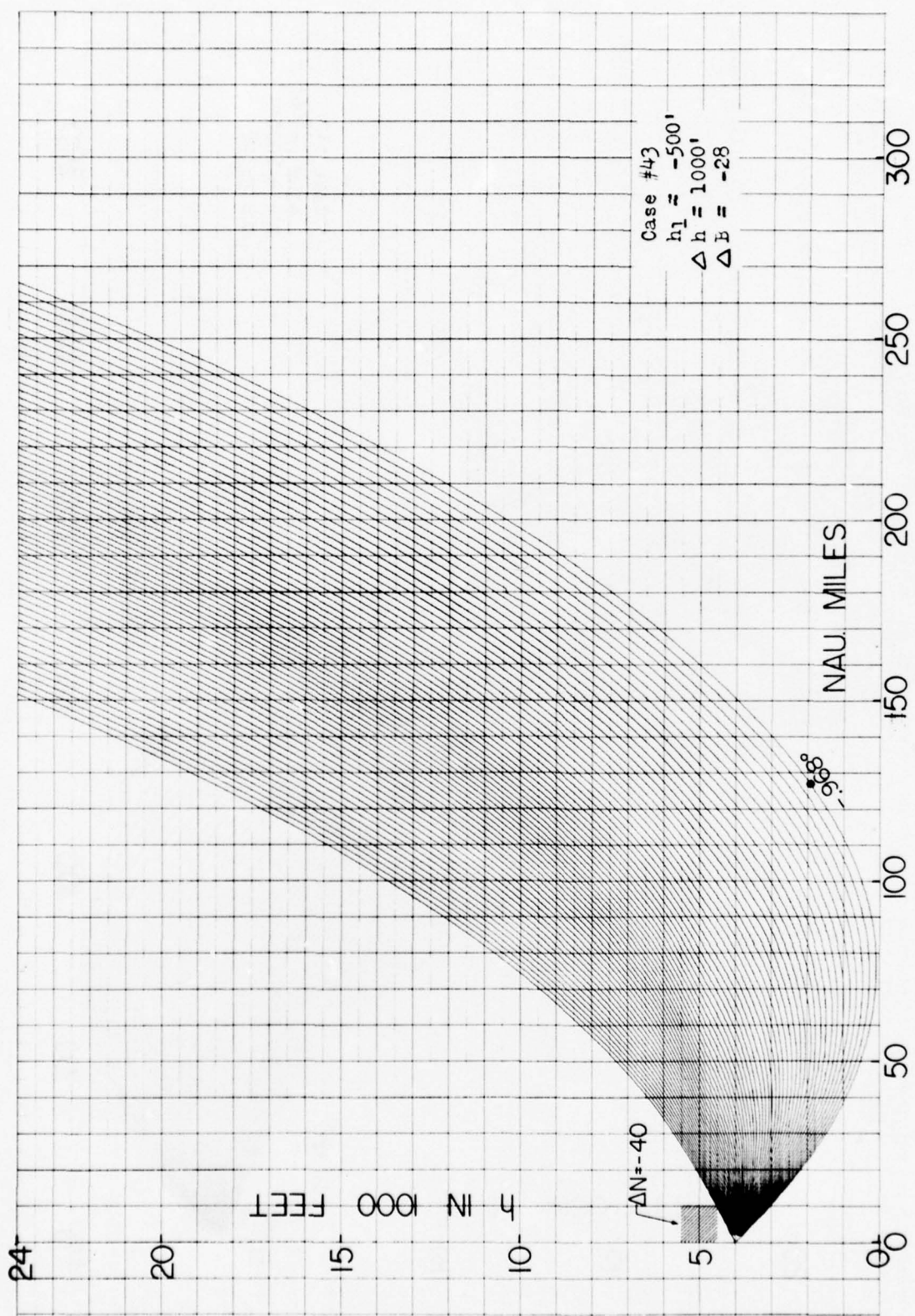


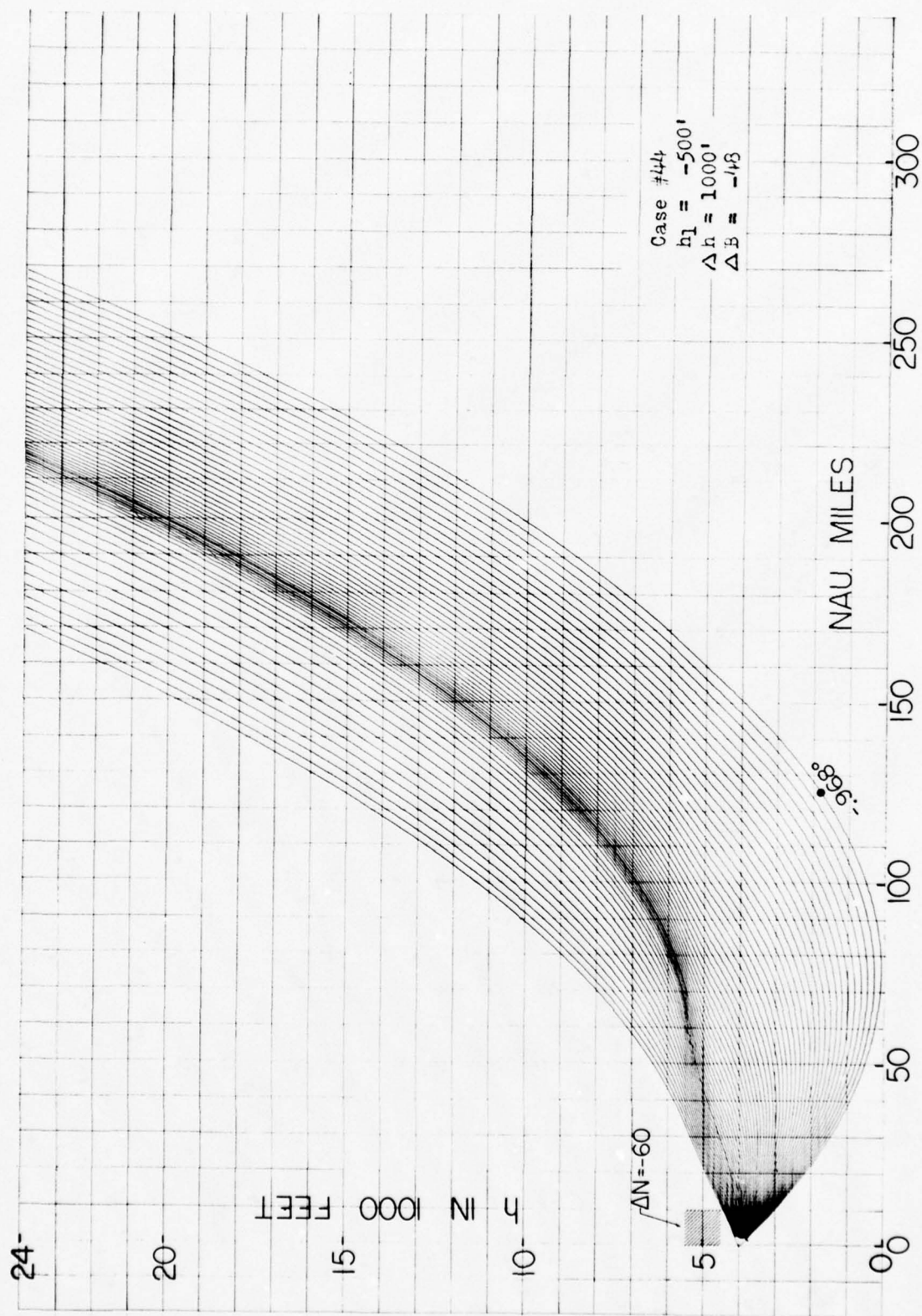








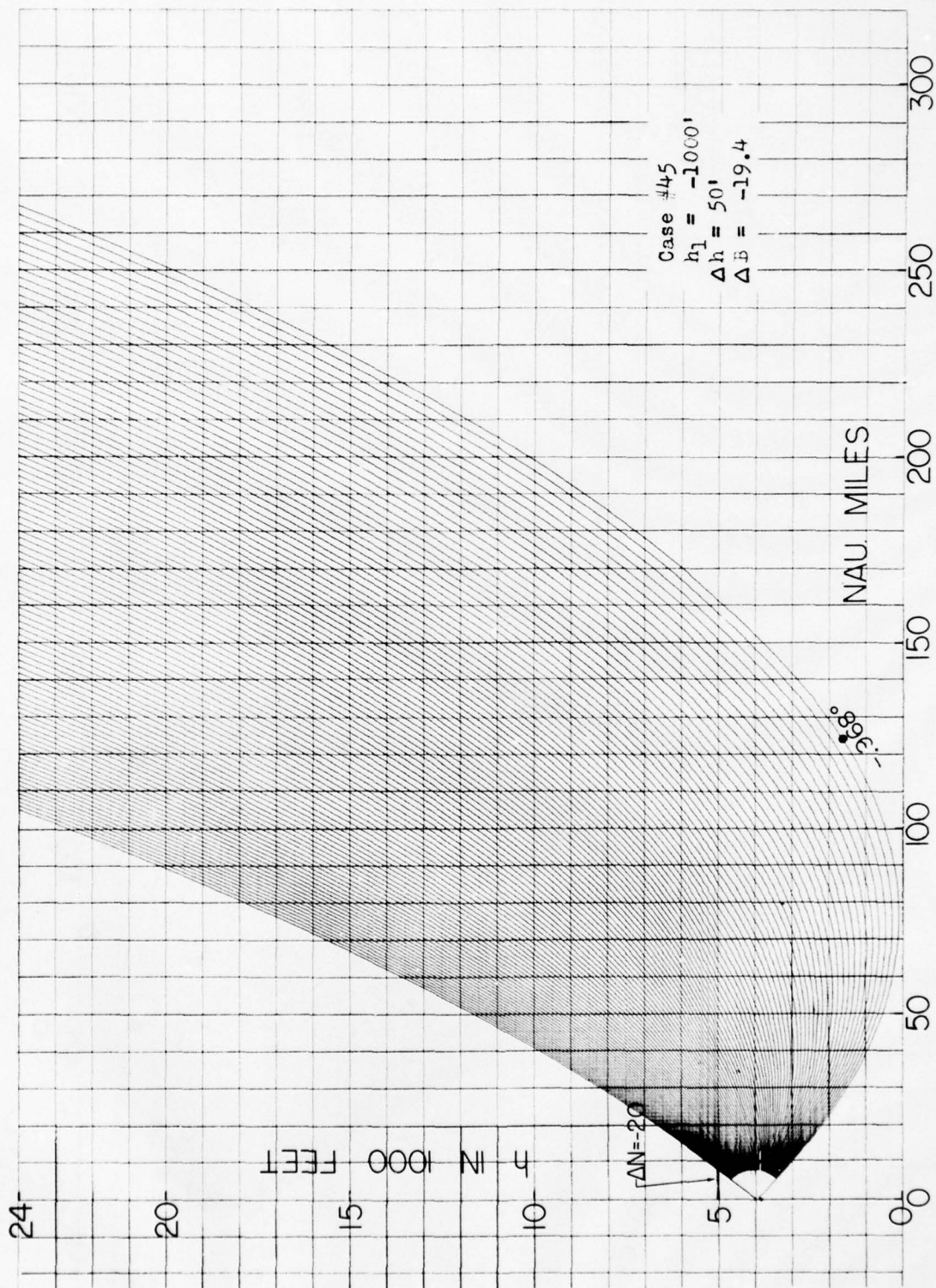


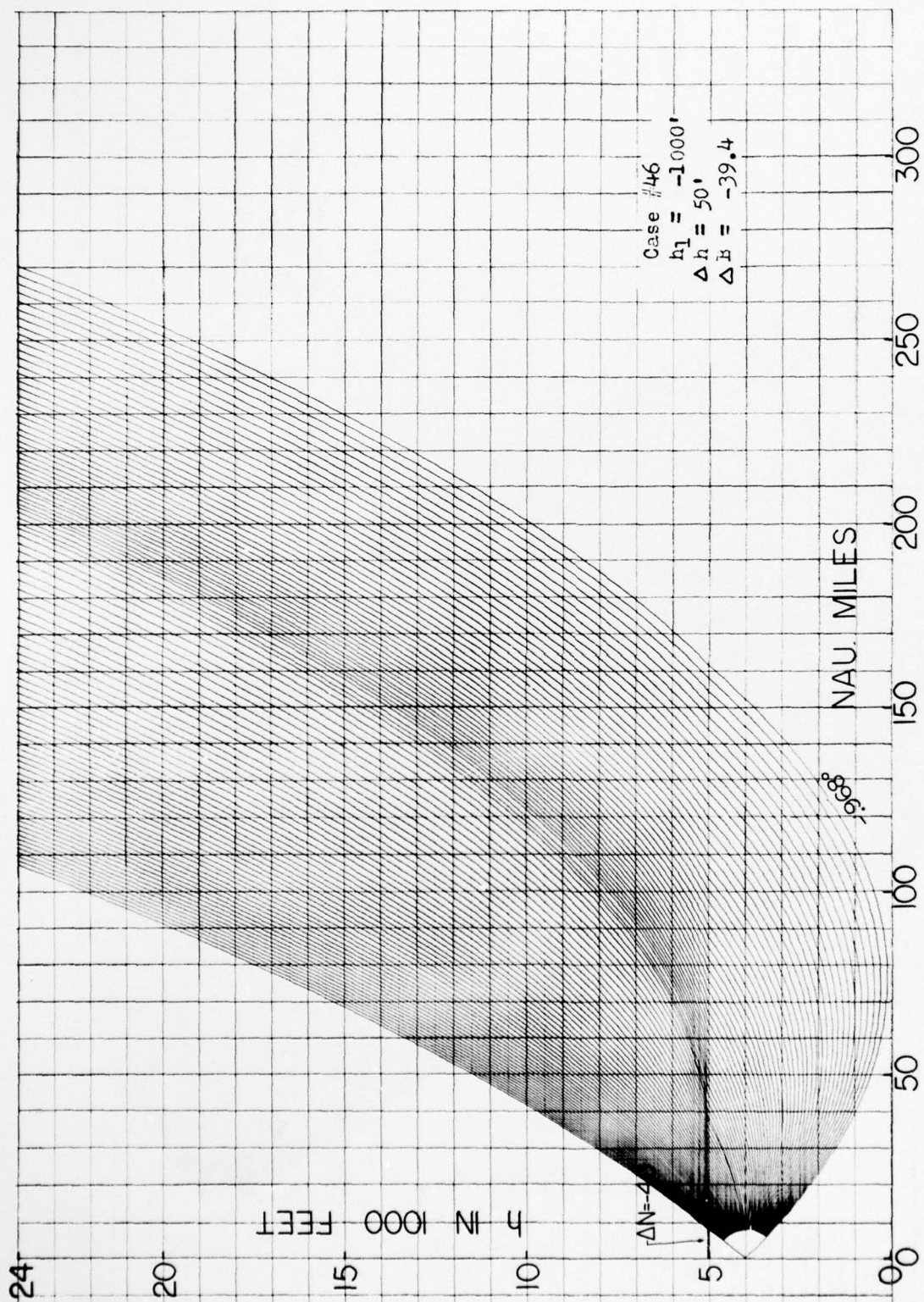


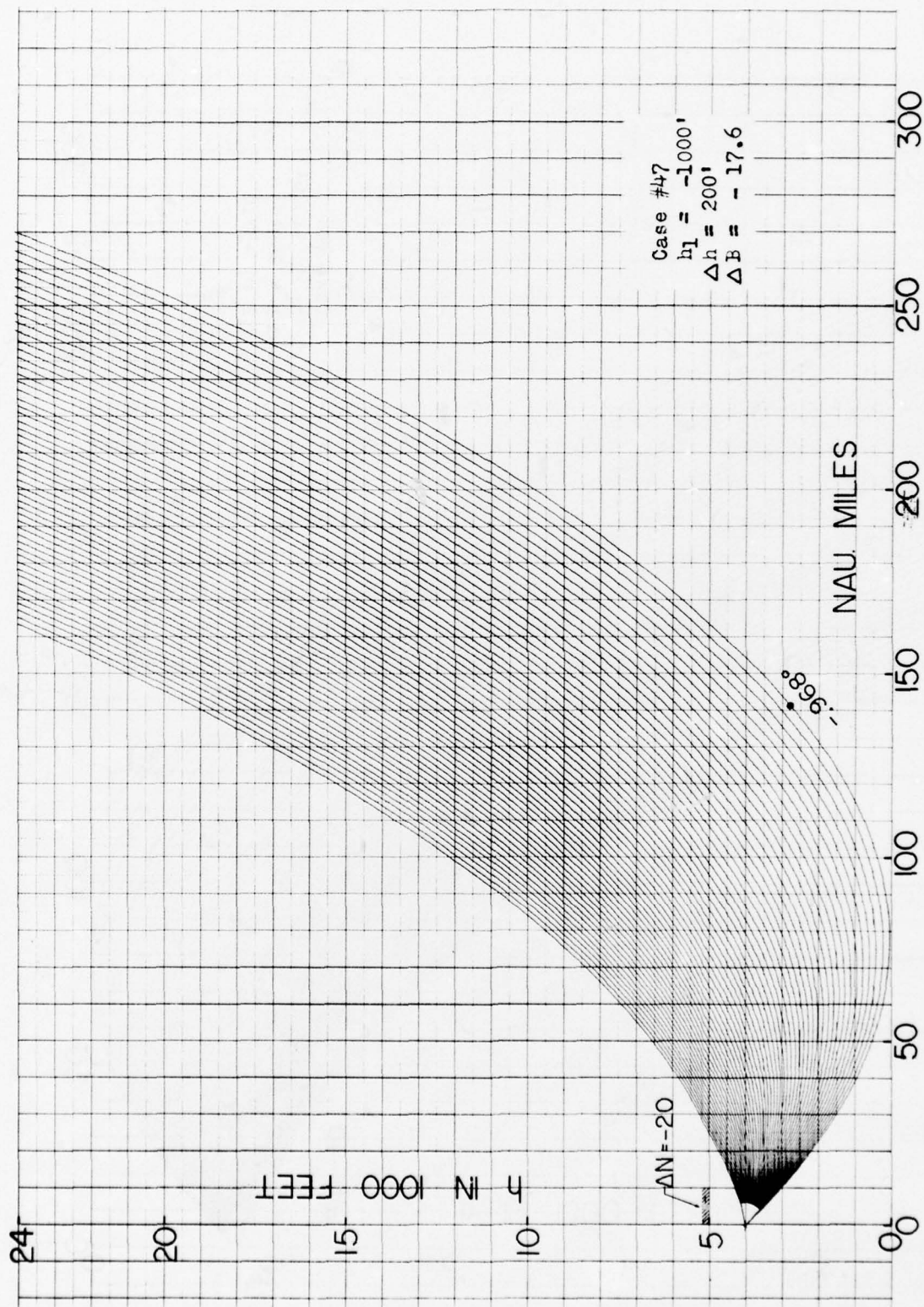
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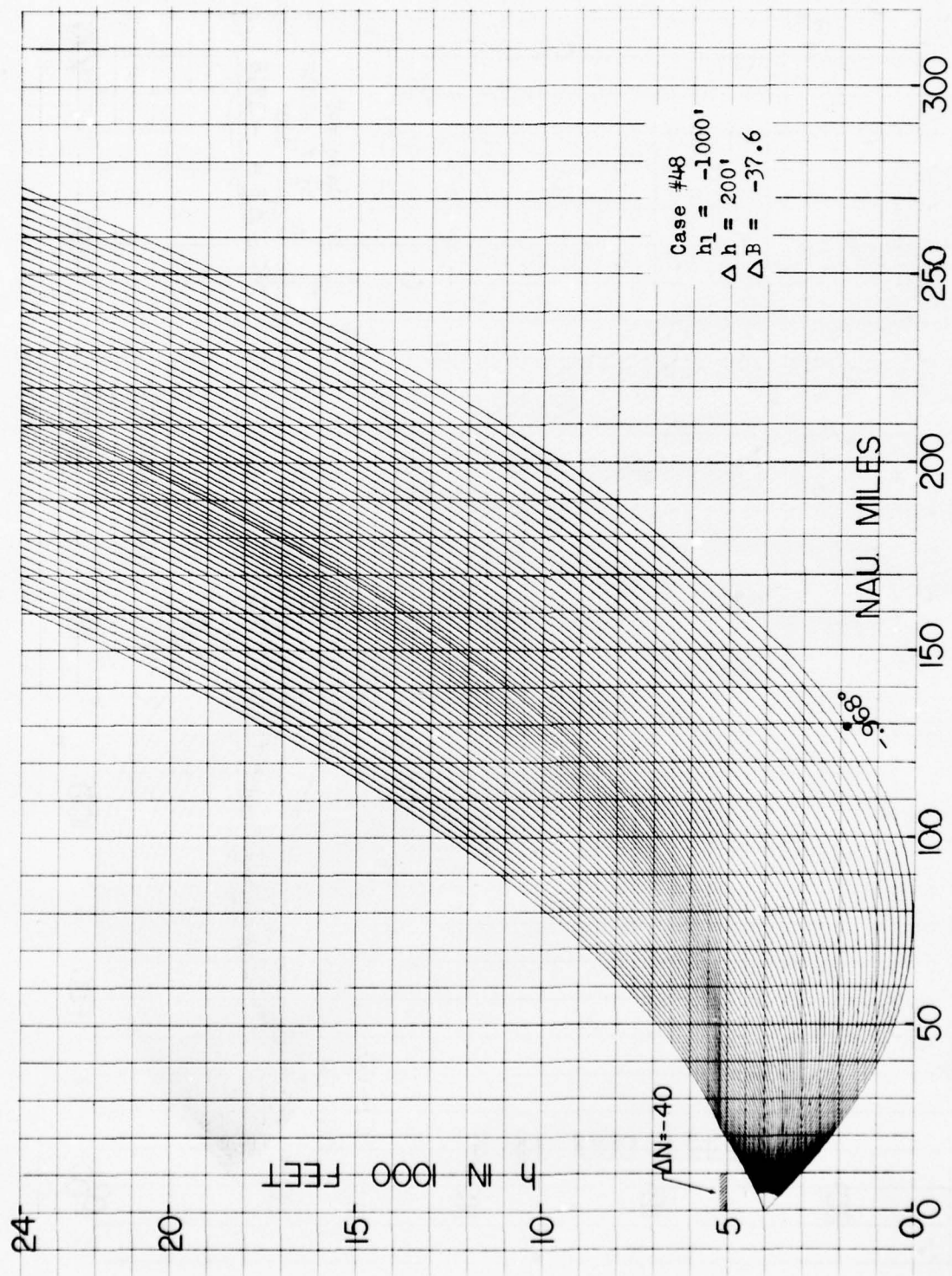
TRANSMITTER 1000 FEET BELOW SUPERSTANDARD LAYER

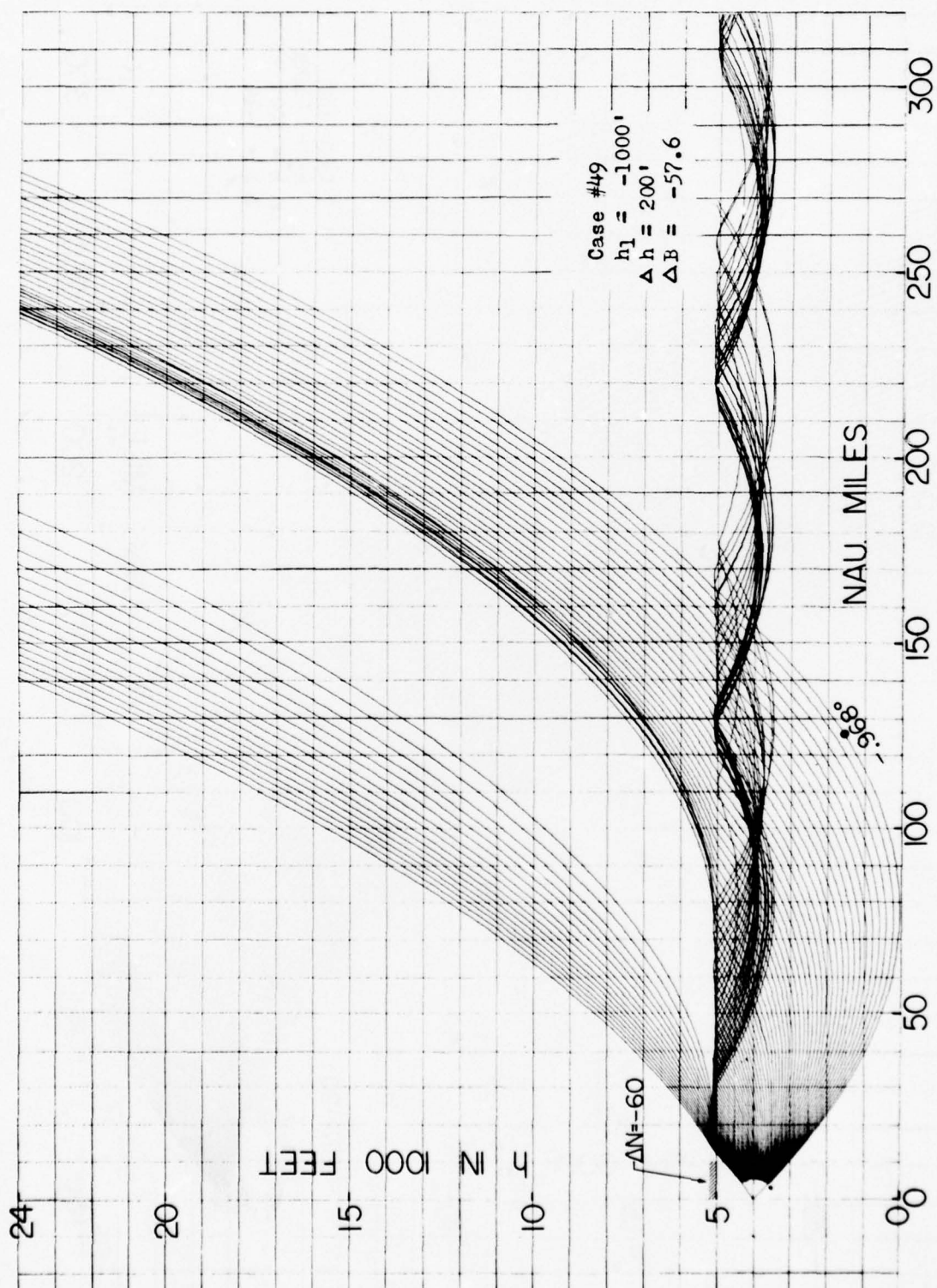
<u>Case</u>	<u>Layer Characteristics</u>				<u>Page</u>
	$h_T - h_B$ <u>Thickness</u>	<u>-ΔN</u>	<u>-ΔB</u>	<u>Trapping Intensity</u>	
45	50'	20	19.4	Yes	119
46	50'	40	39.4	Yes	120
47	200'	20	17.6	Yes	121
48	200'	40	37.6	Yes	122
49	200'	60	57.6	Yes	123
50	500'	20	14	No	124
51	500'	40	34	Yes	125
52	500'	60	54	Yes	126
53	1000'	20	8	No	127
54	1000'	40	28	No	128
55	1000'	60	48	Yes	129

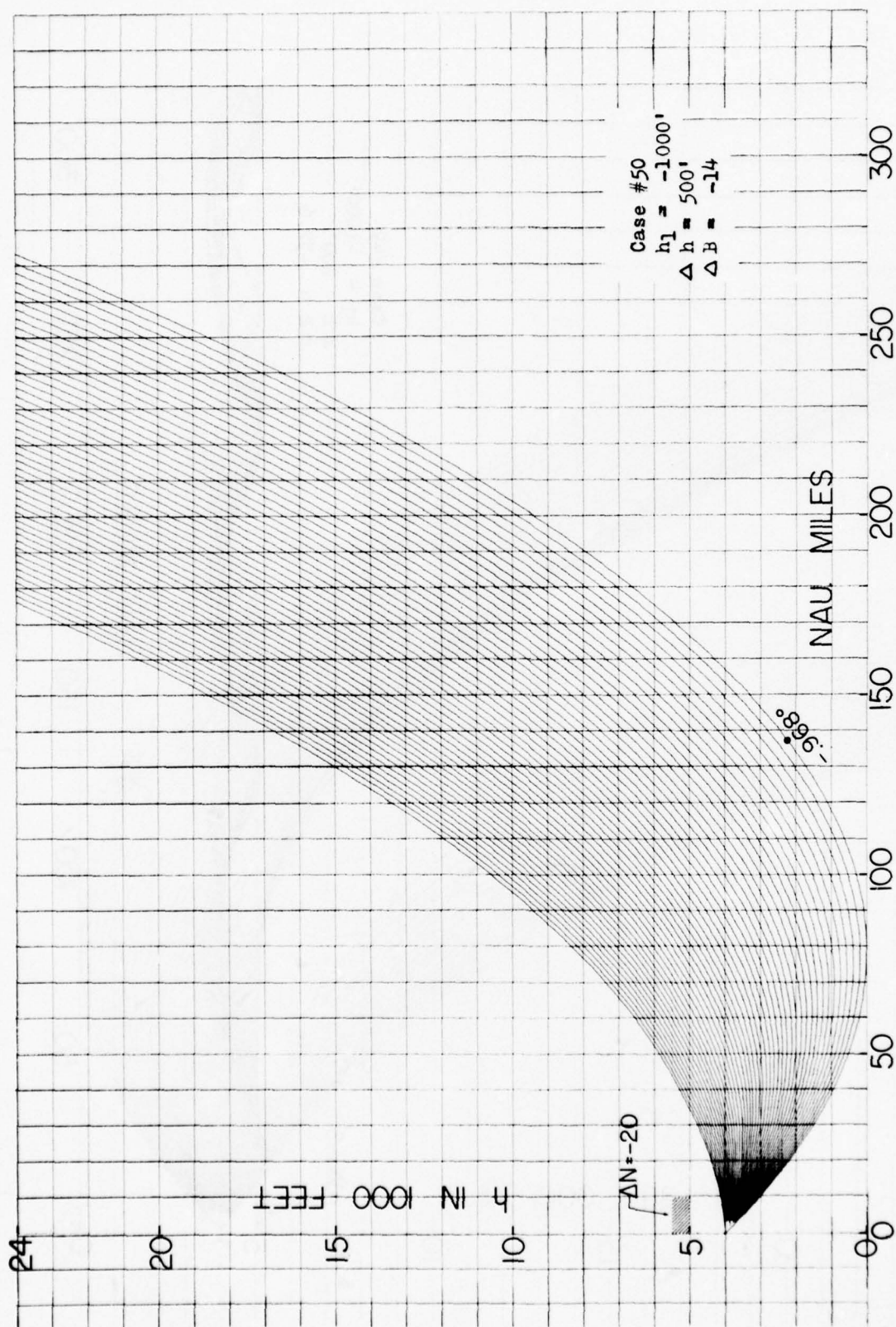


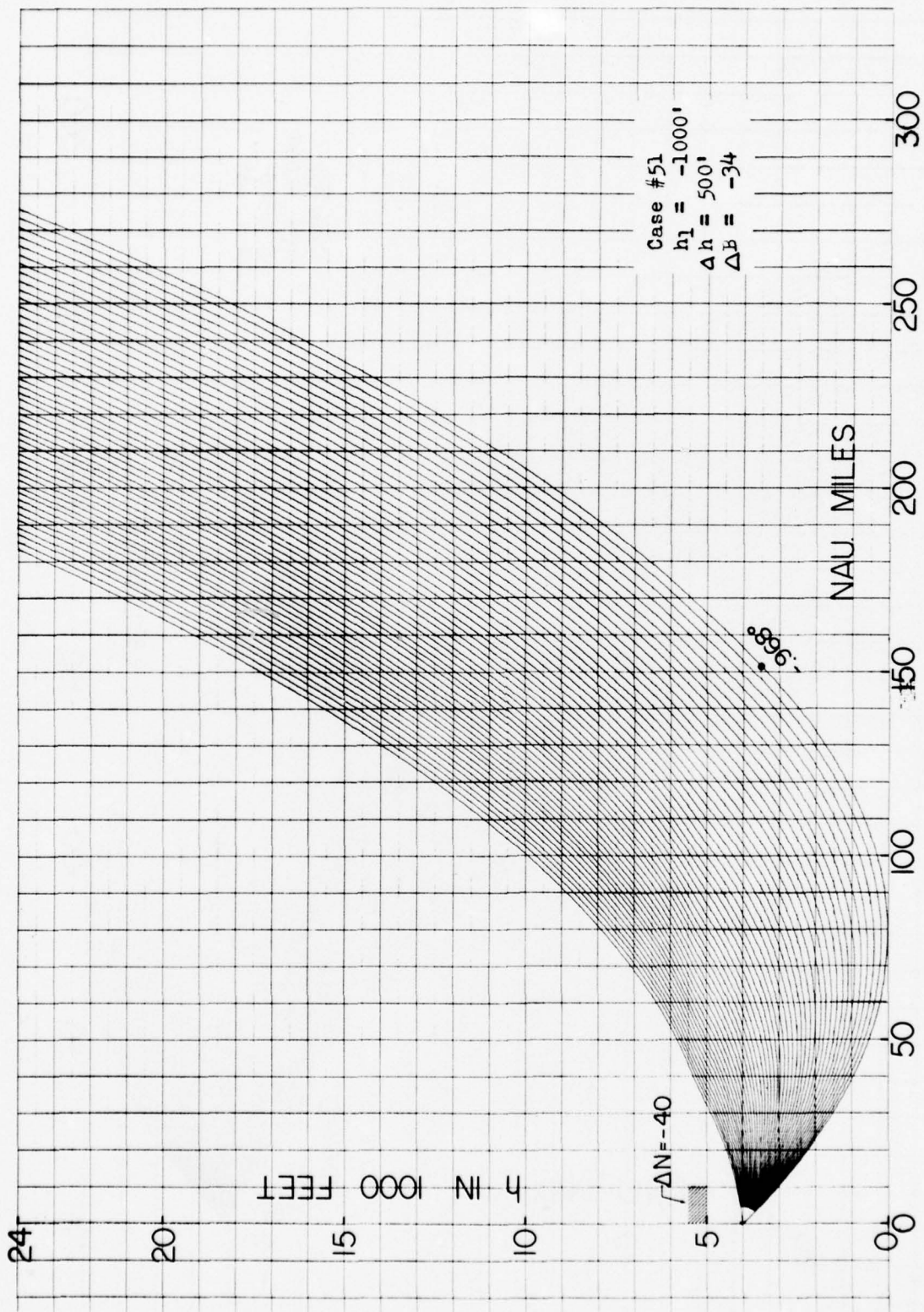


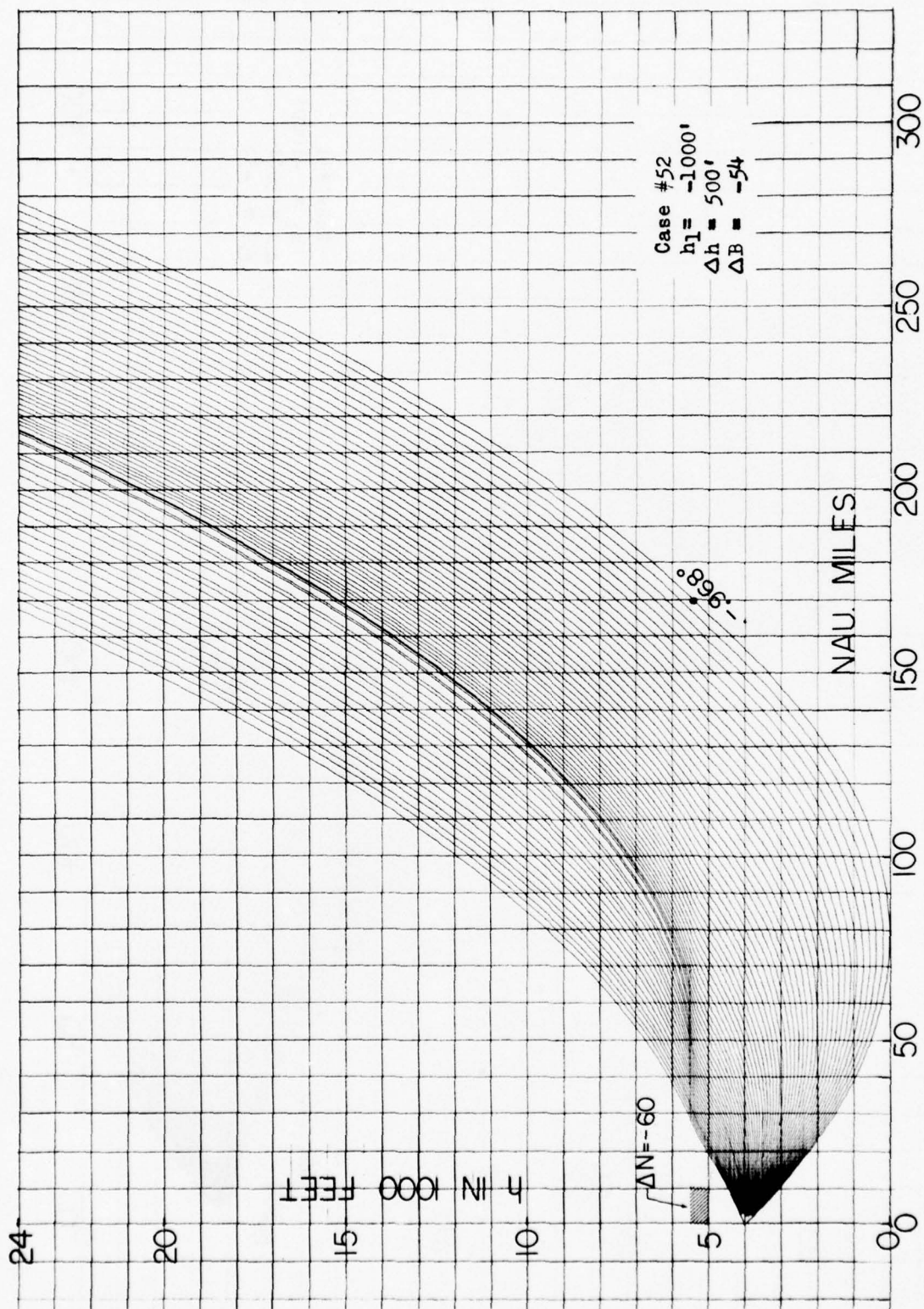


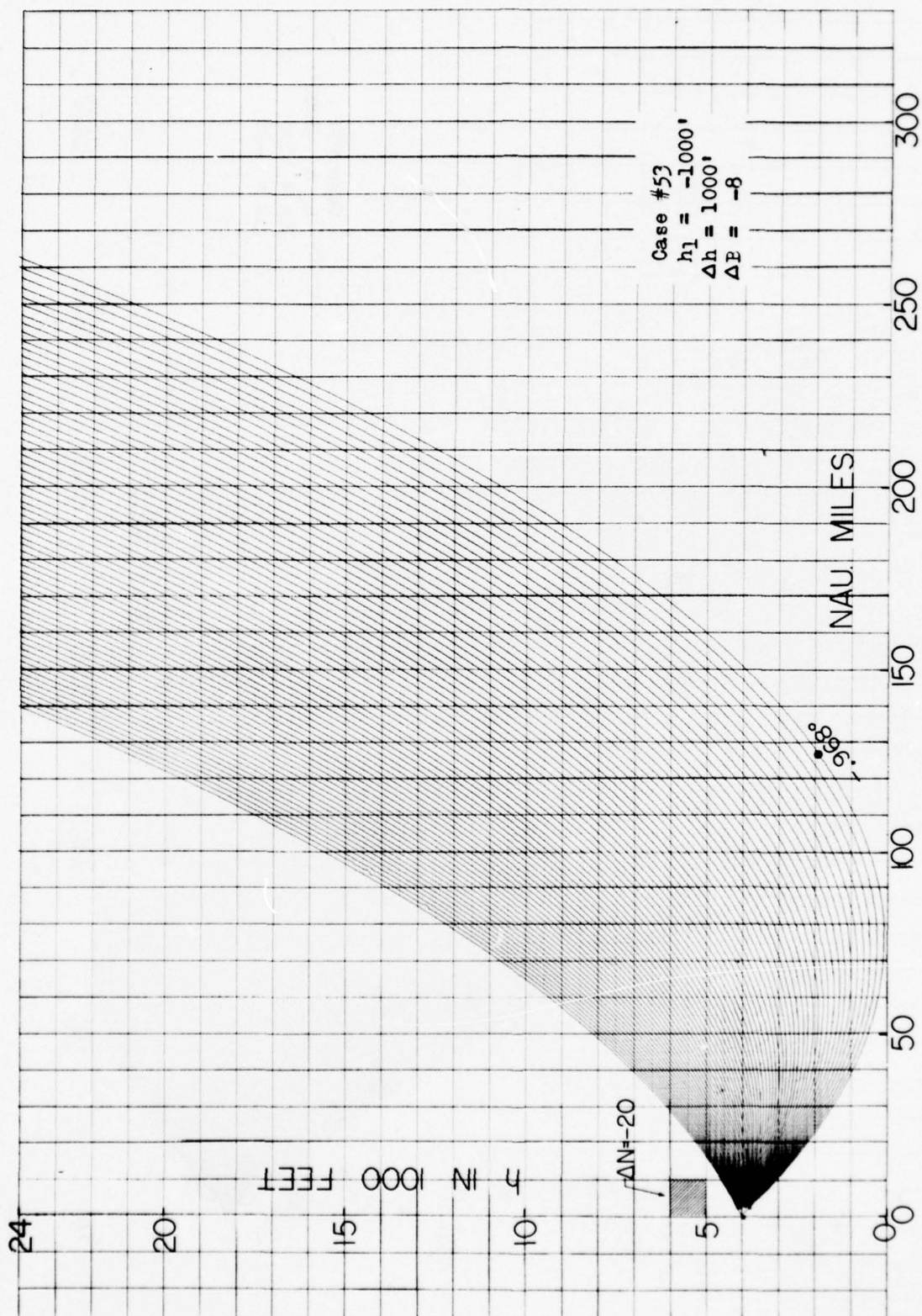


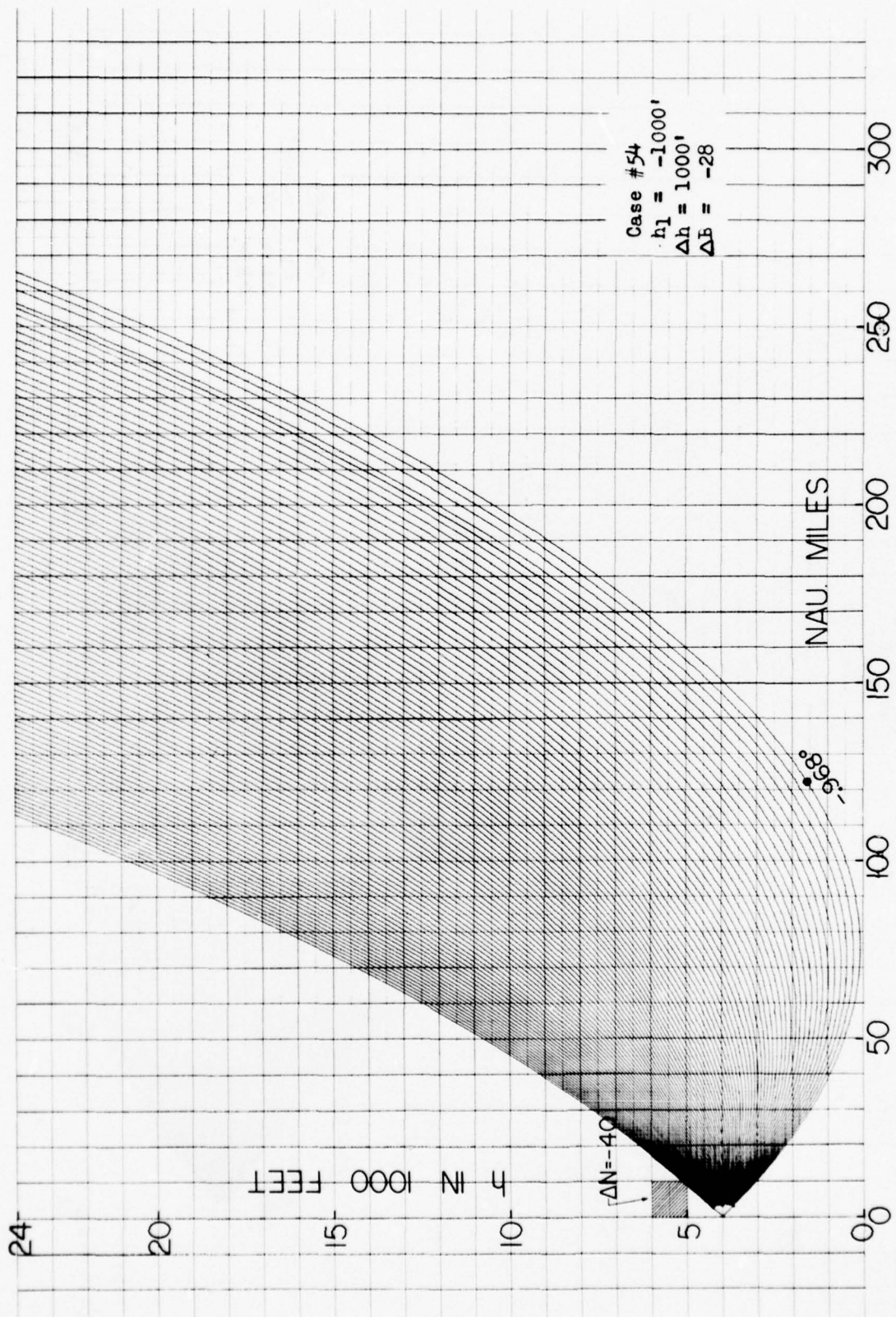


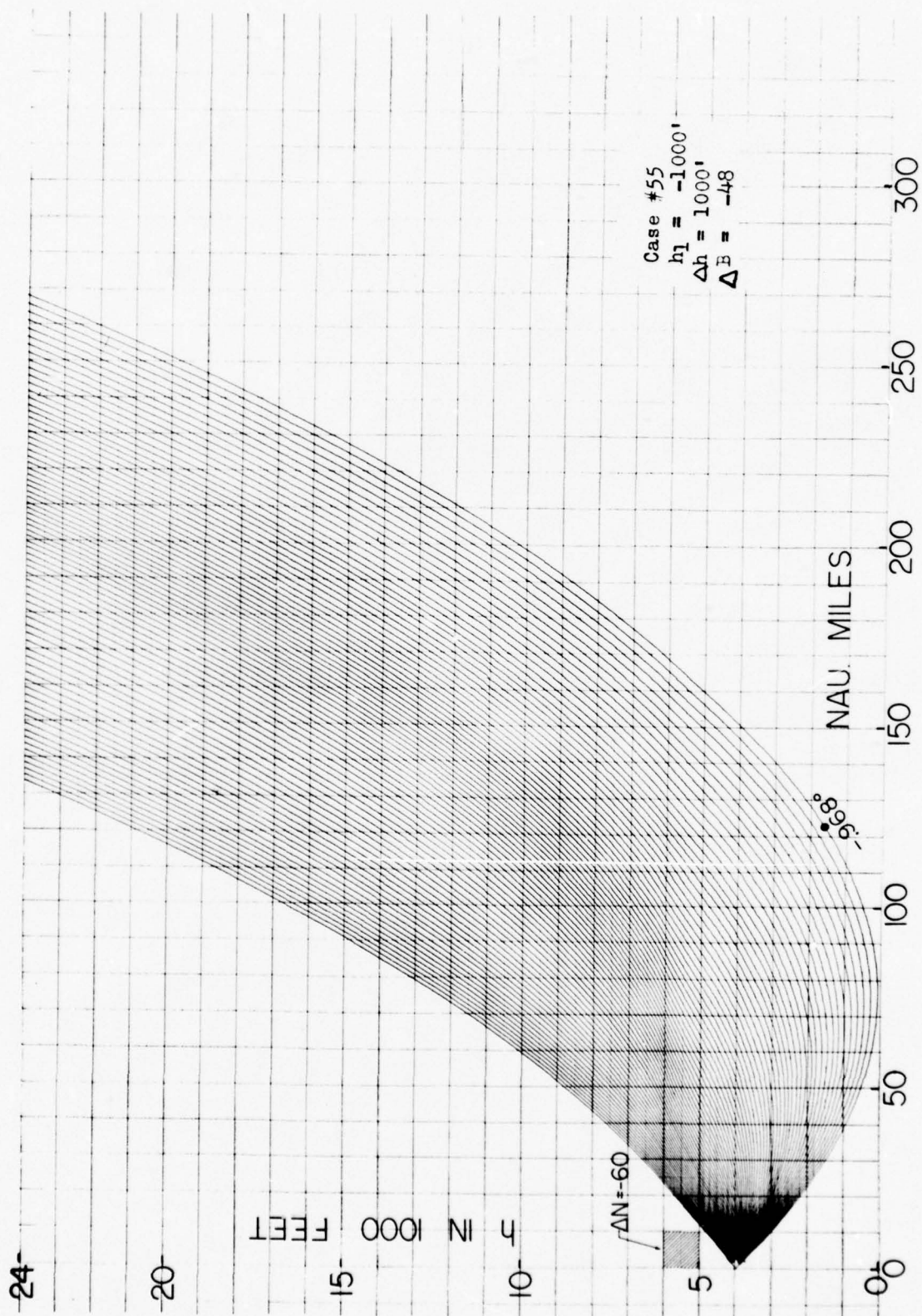








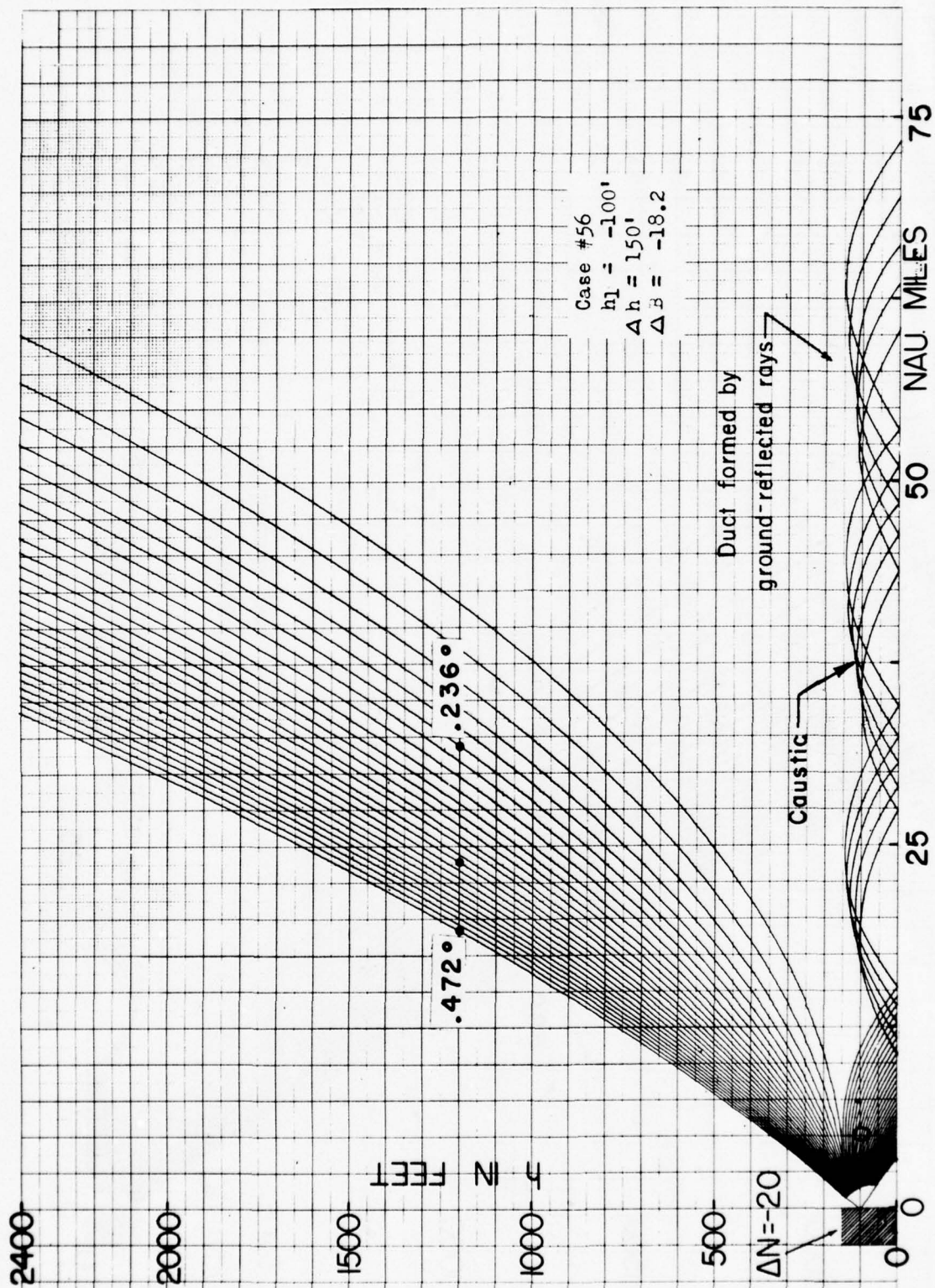


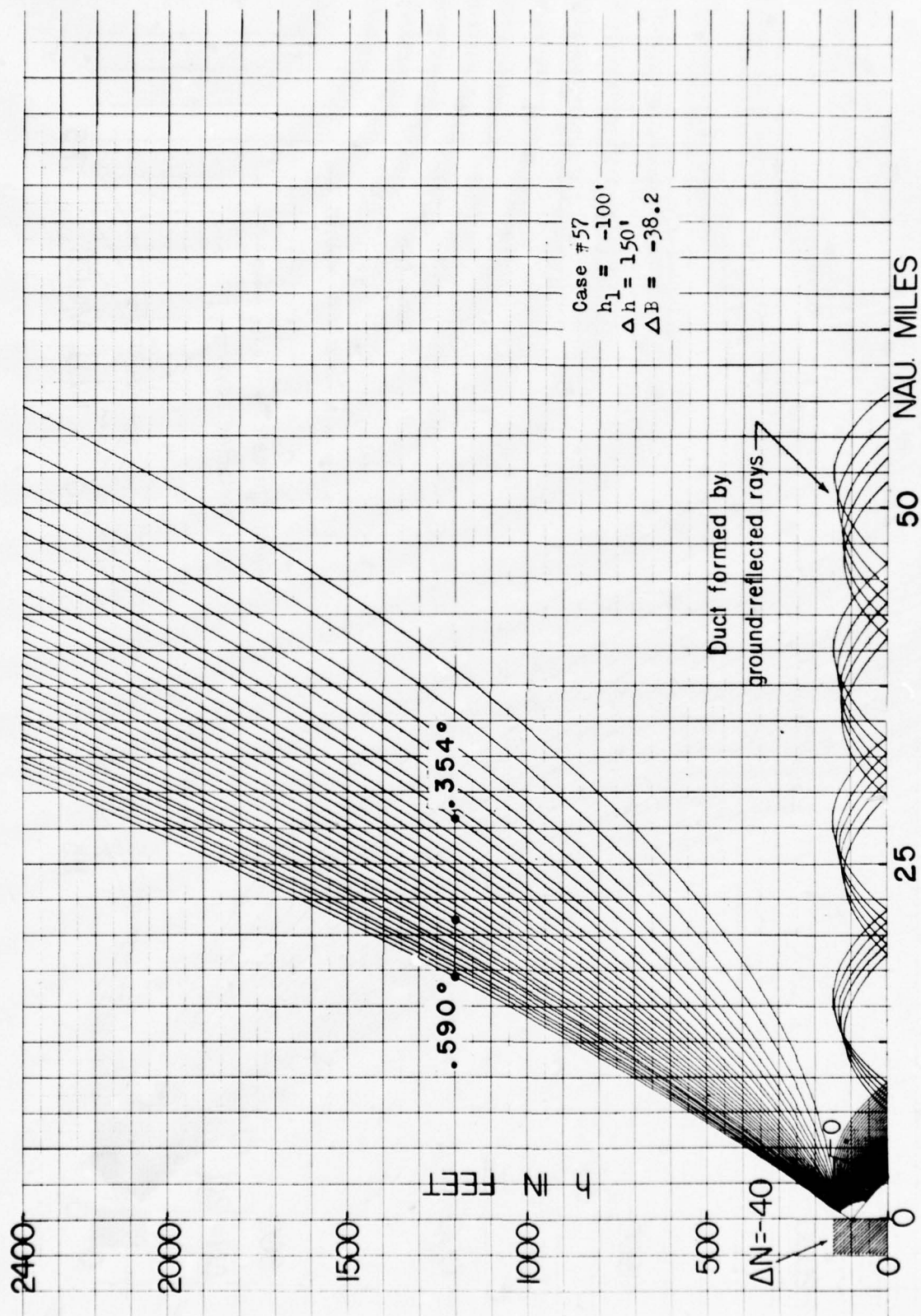


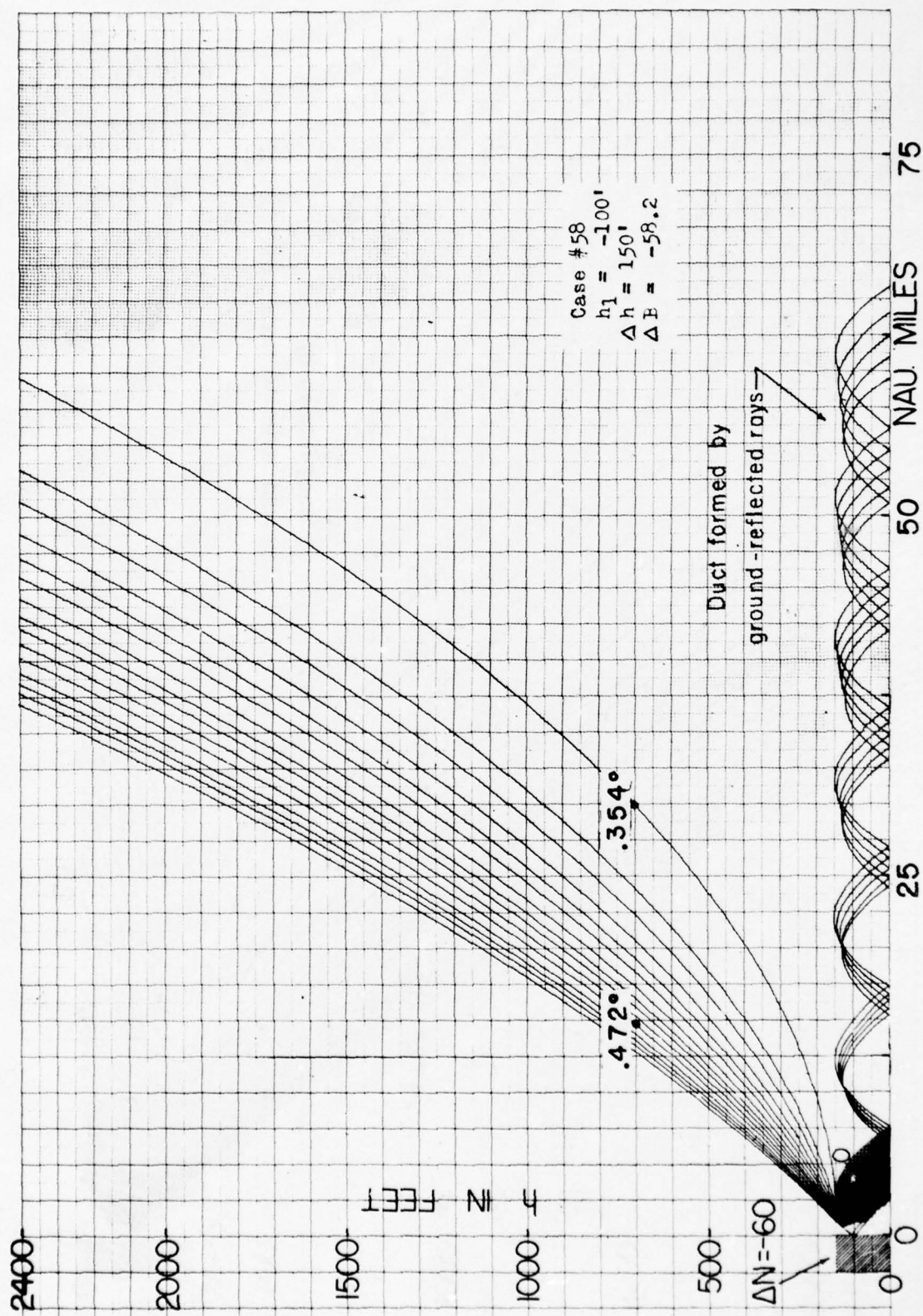
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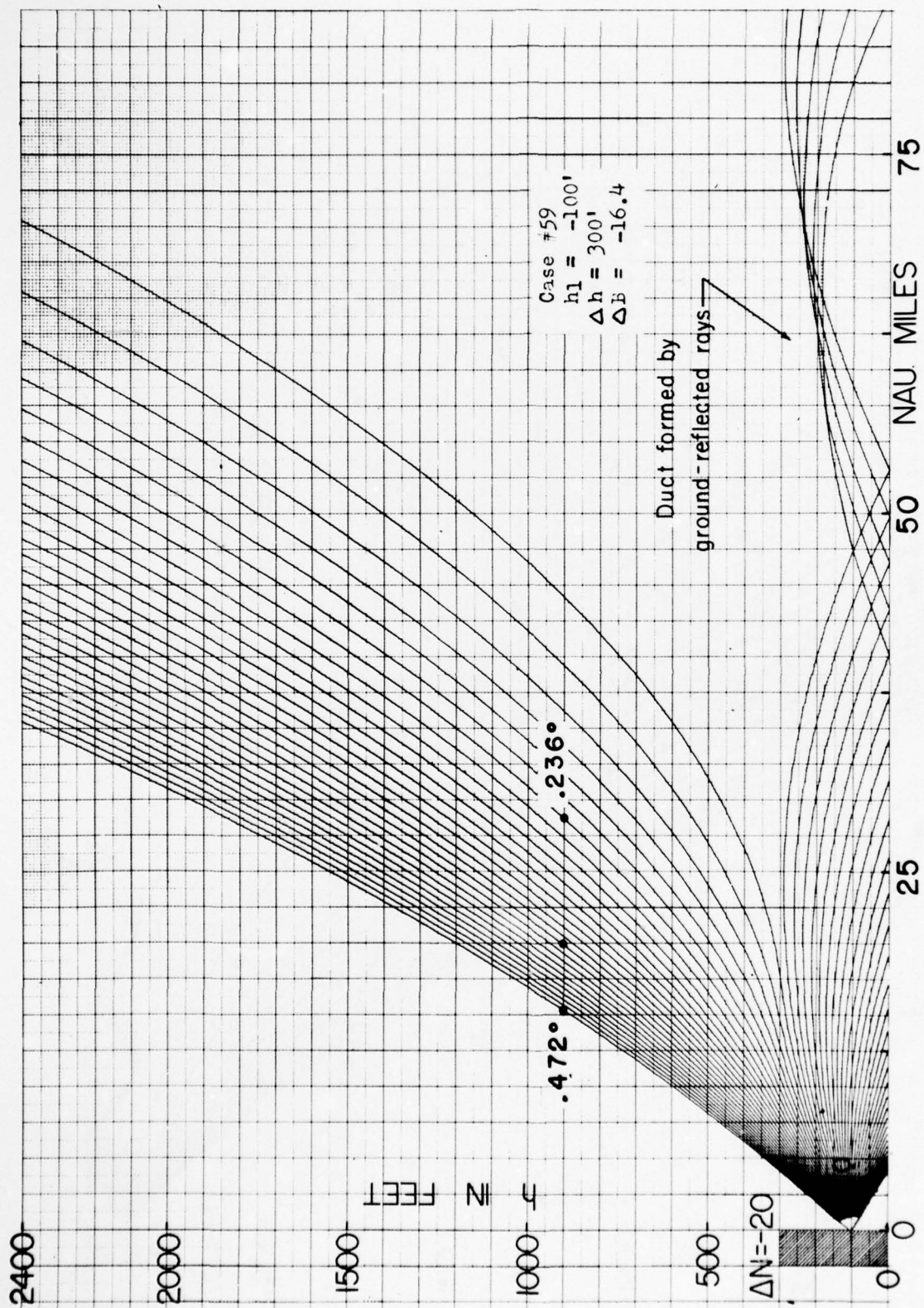
TRANSMITTER 100 FEET ABOVE SURFACE IN SUPERSTANDARD LAYER

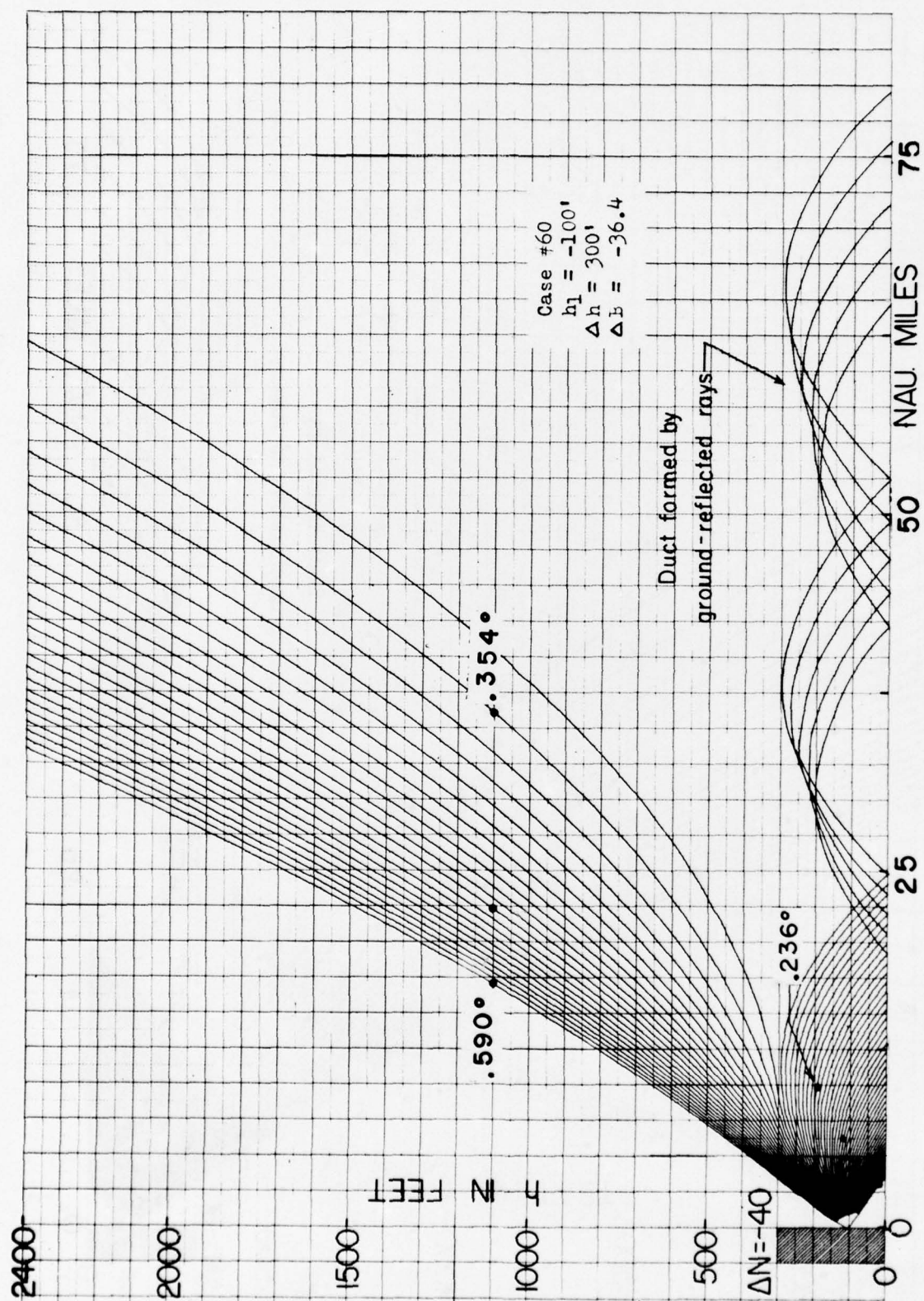
<u>Layer Characteristics</u>					
<u>Case</u>	$h_T - h_B$ <u>Thickness</u>	<u>$-\Delta N$</u>	<u>$-\Delta B$</u>	<u>Trapping Intensity</u>	<u>Page</u>
56	150'	20	18.2	Yes	133
57	150'	40	38.2	Yes	134
58	150'	60	58.2	Yes	135
59	300'	20	16.4	Yes	136
60	300'	40	36.4	Yes	137
61	300'	60	56.4	Yes	138

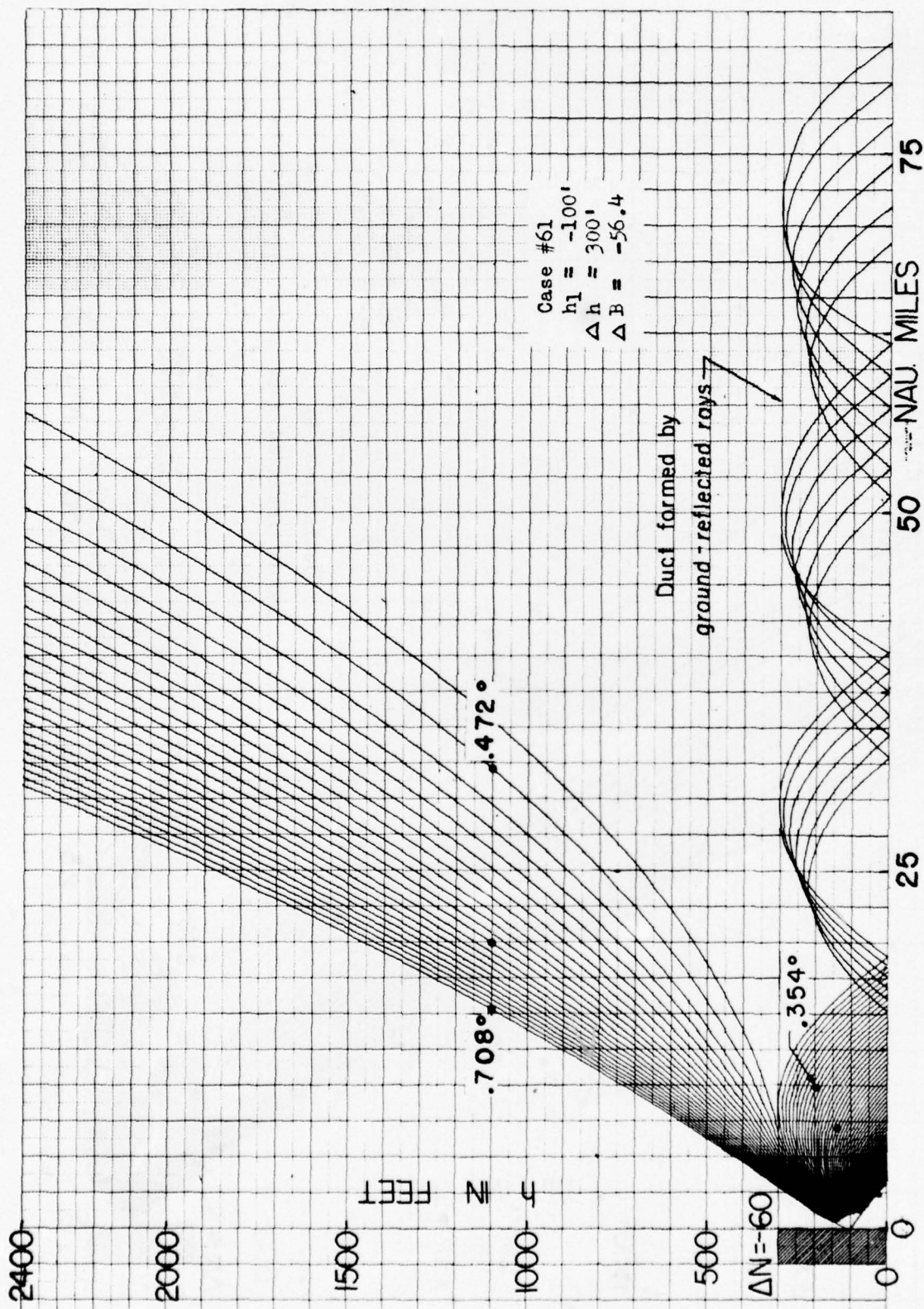












Appendix C

METHODS OF DETERMINING AND FORECASTING D-VALUES

Constant-pressure maps may be readily converted to D-value or HCF (Height Correction Factor) maps. Since the contours on a constant-pressure map represent the true altitude of that pressure surface, one has simply to subtract the standard-atmosphere height of the pressure surface from the contour height and re-label the contour with the D-value. Merely reversing the sign of the D-value converts the constant-pressure map to an HCF map. Figures 3 through 18 are seasonal climatic charts of D-values.

Presented below are two methods of forecasting D-values that detachments can use. Only under very unusual or rapidly-moving synoptic situations will a height value at a point be likely to change more or less than the National Meteorological Center's (NMC) facsimile prognoses indicate. Therefore, the forecasting methods are justifiably very simple, and will rarely cause a forecast to miss by more than one to two hundred feet. As pointed out in section 9.1.5.b of Volume I, it must be remembered that D-values have no connection with refraction errors.

C.1. Method 1.

a. Preparation and Plotting. Use Figure 1 mounted with a stiff backing and covered with Figure 2 inscribed on acetate. To insure correctness of scaling the vertical index lines labeled "0" should overlay as well as the borders of the two figures. Having the lines on the acetate opposite in color from Figure 1 will increase ease of reading.

Figure 1 has been drawn to allow direct plotting from raob reports. The horizontal lines represent the mandatory reported pressure surfaces. Each surface is identified by the pressure in millibars given near the right margin of the graph. The pressure altitude of each surface in geopotential meters and feet is also given at the far right. The three digits of the surface height which is used for raob transmission are underlined. The short vertical lines denote 20-meter intervals. The "T"-values represent 100-meter intervals and are coded with the three digits transmitted as raob data. The "0" line coincides with the standard height of each surface.

The portion of the graph to the left of the "0" line denotes negative D-values and hence positive HCF's while the right side of the graph denotes

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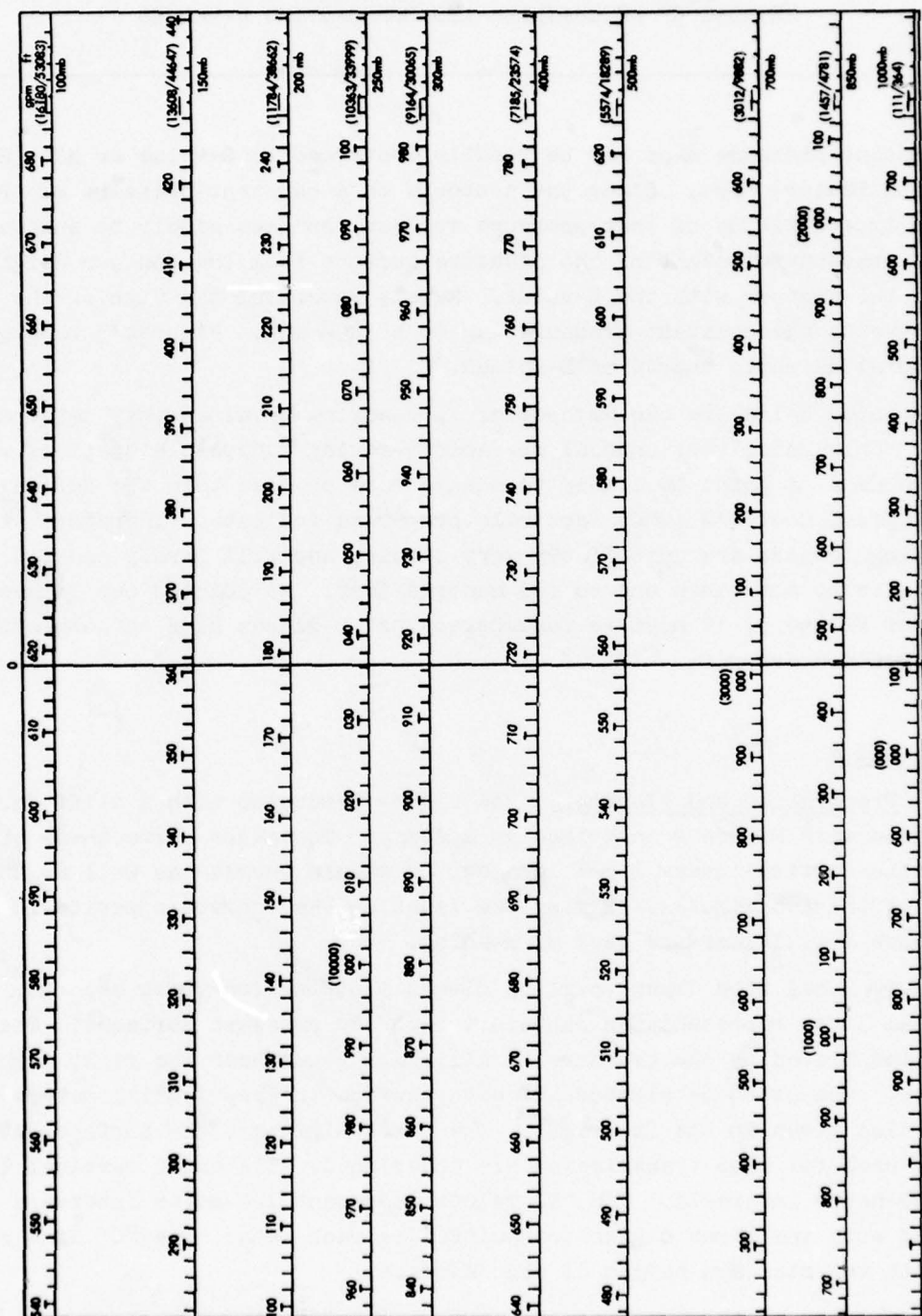


Figure 1. Mandatory Pressure-Surface Graph for Computation of D-HCF Values.

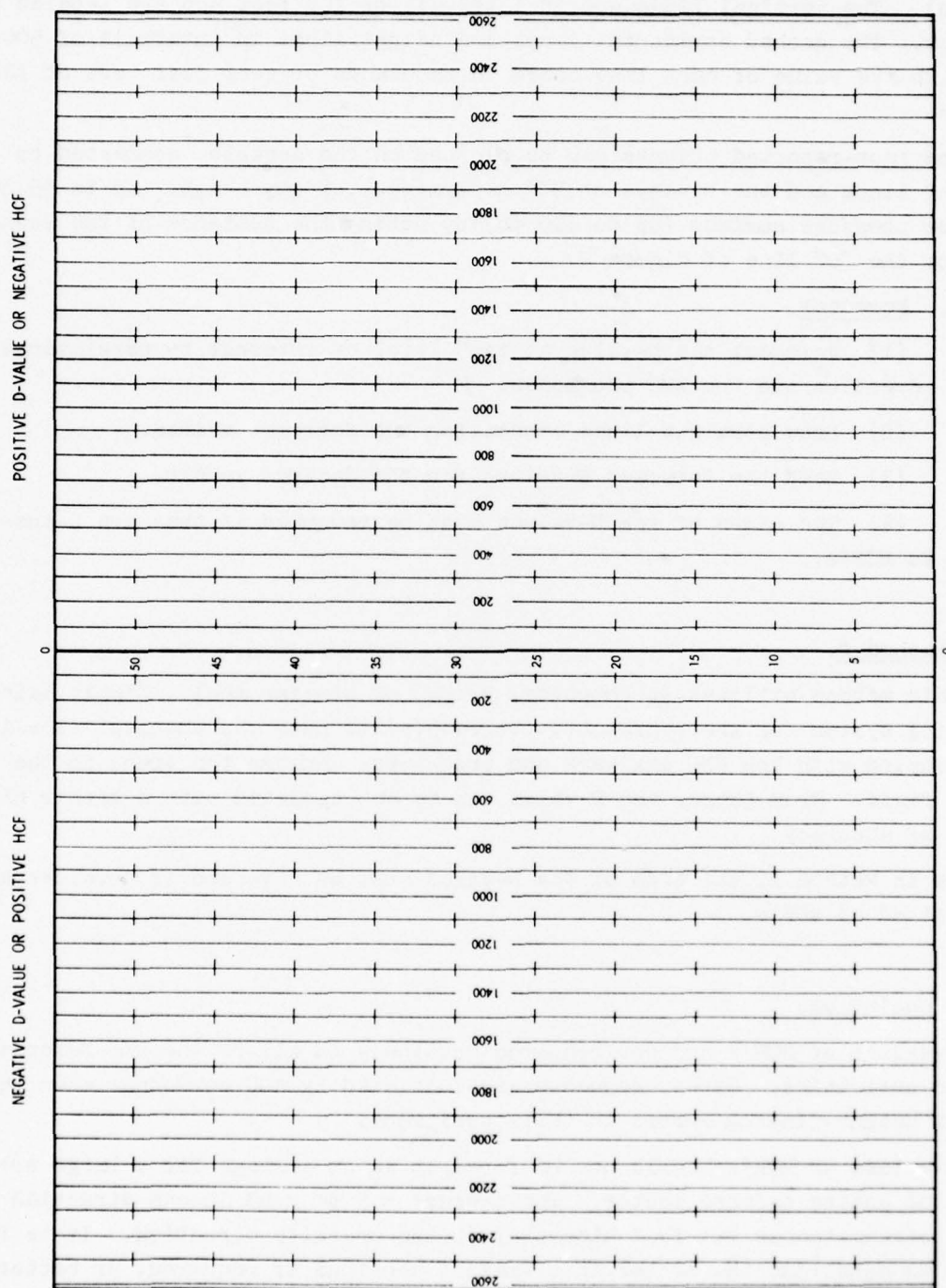


Figure 2. D-HCF Overlay for Mandatory Pressure-Surface Graph.

positive D-values or negative HCF's.

The actual D-value or HCF is determined with Figure 2 (inscribed on acetate). The vertical lines are in intervals of 100 feet and are labeled each 200 feet. The dashed horizontal lines are height lines in intervals of 5000 feet with the value of each line coded in thousands of feet just left of the "0" line.

The raob-reported heights can be plotted on the acetate, connected by straight lines and the D-value or HCF determined for any height (up to 55,000 feet) or pressure surface (up to 100 mb) by noting the distance of the sounding from the "0" line of Figure 2.

b. Forecast.

(1) Forecast the D-value at each level of interest by persistence, trend, advection and the NMC prognoses.

(2) Draw straight lines connecting the forecast values.

(3) Read the forecast D-values for the desired levels.

(4) The signs of the D-values must be reversed if they are transmitted as HCF's.

C.2. Method 2.

This method utilizes no computer, graph, or similar tool. Simply maintain a logging system for the representative raob(s) to note the changes. The log, when coupled with the NMC analyses and prognoses, denotes the trend in the height field. From these, the D-value can be extrapolated with a rather high degree of accuracy.

As in Method 1, the sign of the D-value must be reversed if D-values are transmitted as HCF's.

C.3. Conclusion.

D-values or HCF's are not required routinely in all of the Air Defense Command activities. Often, requests are initiated by ADC personnel when they suspect height-finding errors in their equipment.

D-values or HCF's should not be forecast as an average for a large area; e.g., the entire defense sector. The average may be good in one direction under normal circumstances but fail miserably in the opposite direction. It is far better to subdivide the sector into smaller sections if required, or better still, forecast the D-values for a particular station or point within the sector.

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If planning forecasts are required, the 4th Weather Wing study, "Mean and Standard Deviation of Selected Pressure Level Heights over the U. S." (4WW-448), February 1958, provides an excellent guide. Most 4th Weather Wing detachments should have this study available in their files.

No detachment is obligated to use the methods listed in this report. There are several other methods that give equally good results. If the methods here are used, however, it is suggested that the procedures for plotting and forecasting be extracted and made a permanent, easily accessible part of the computer.

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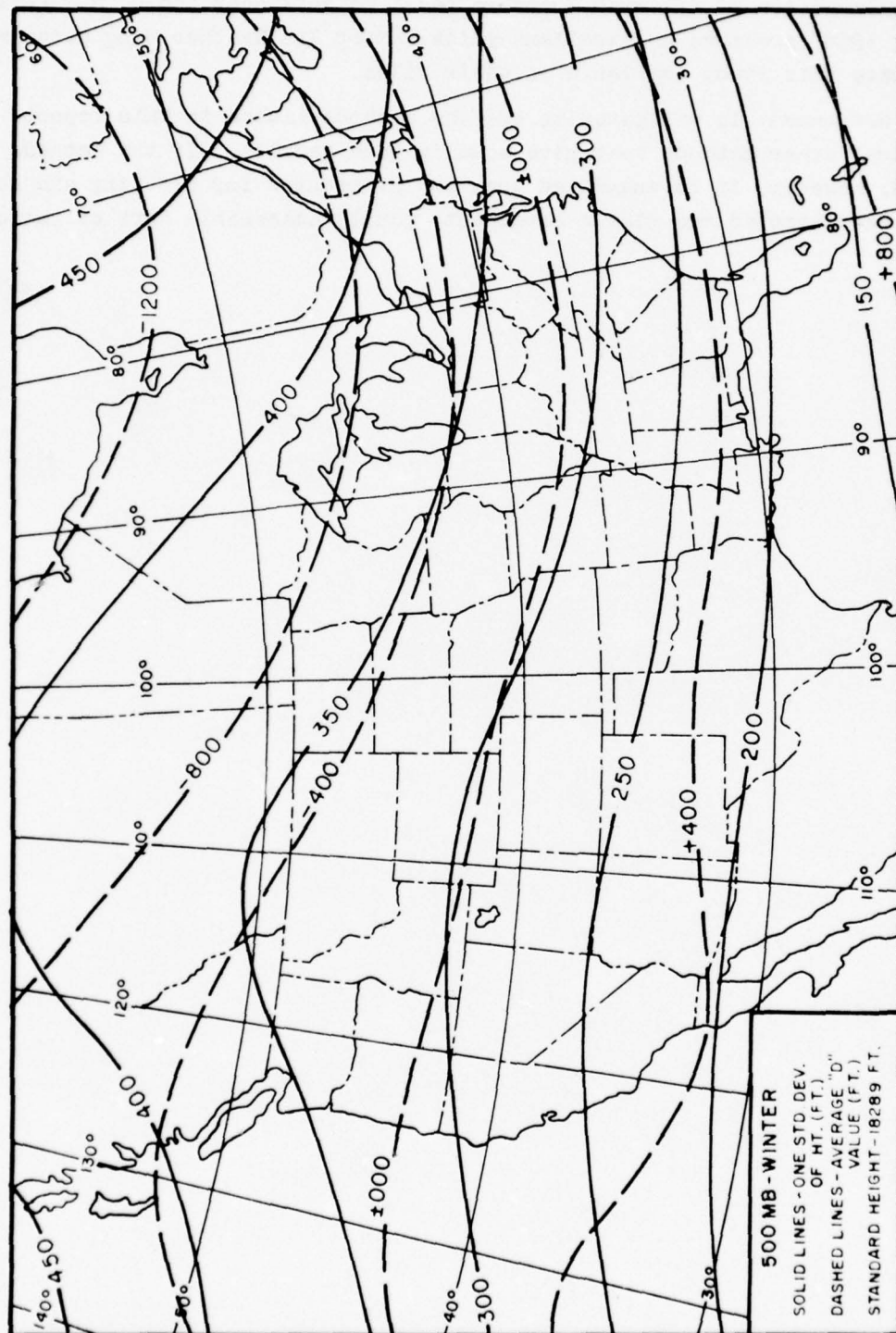


Figure 3. 500-mb Winter Standard Deviation and Average D-Value.

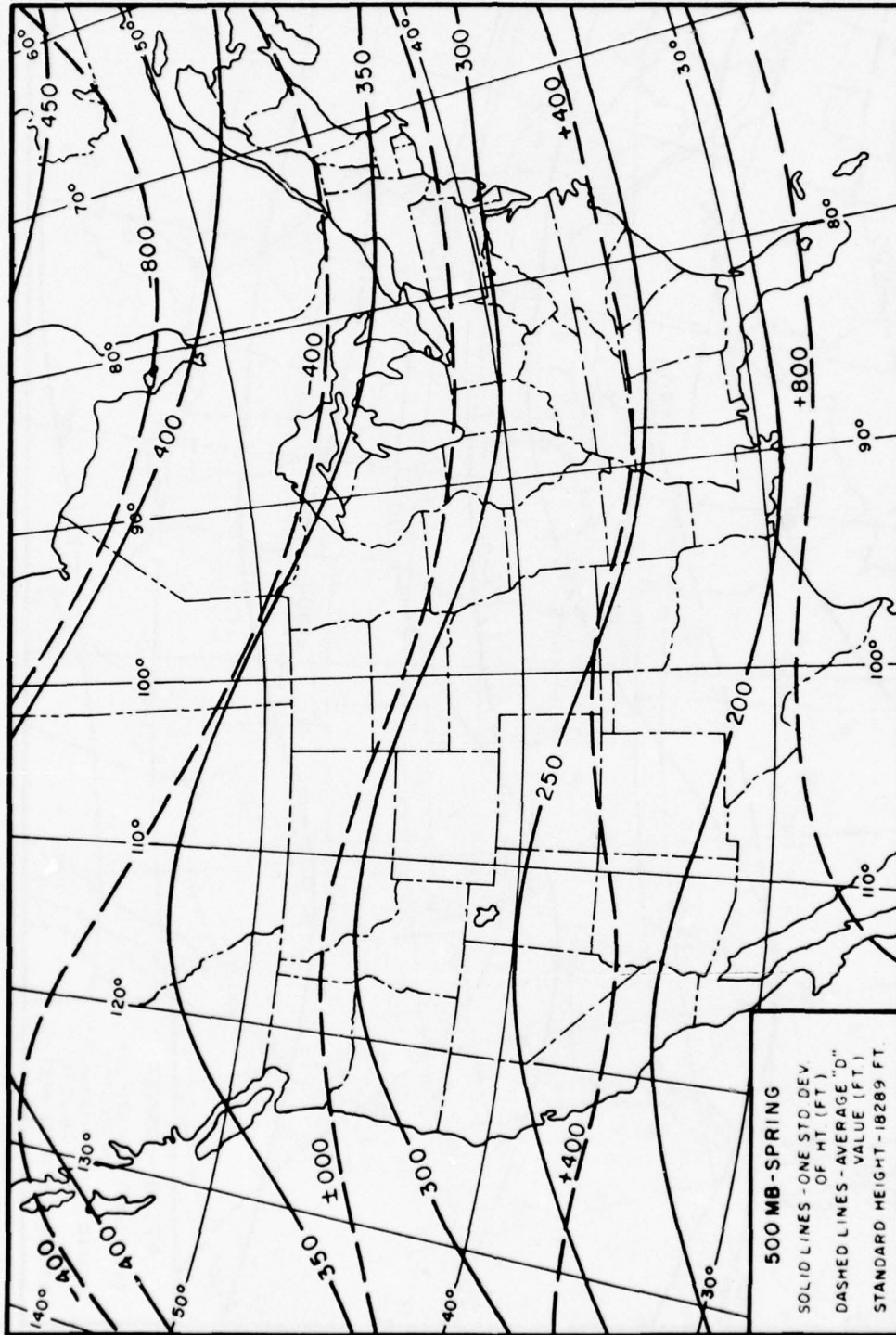


Figure 4. 500-mb Spring Standard Deviation and Average D-Value.

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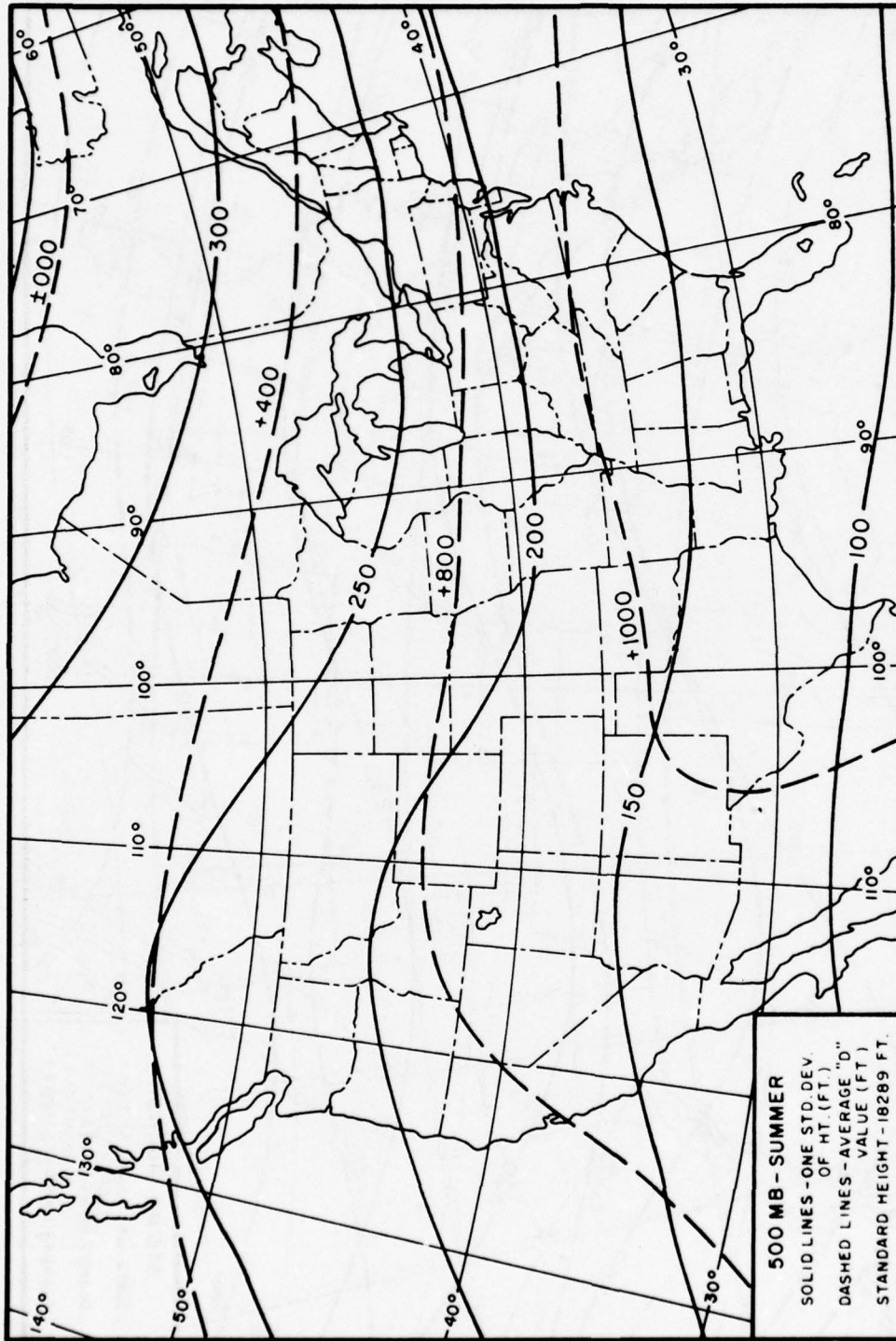


Figure 5. 500-mb Summer Standard Deviation and Average D-Value.

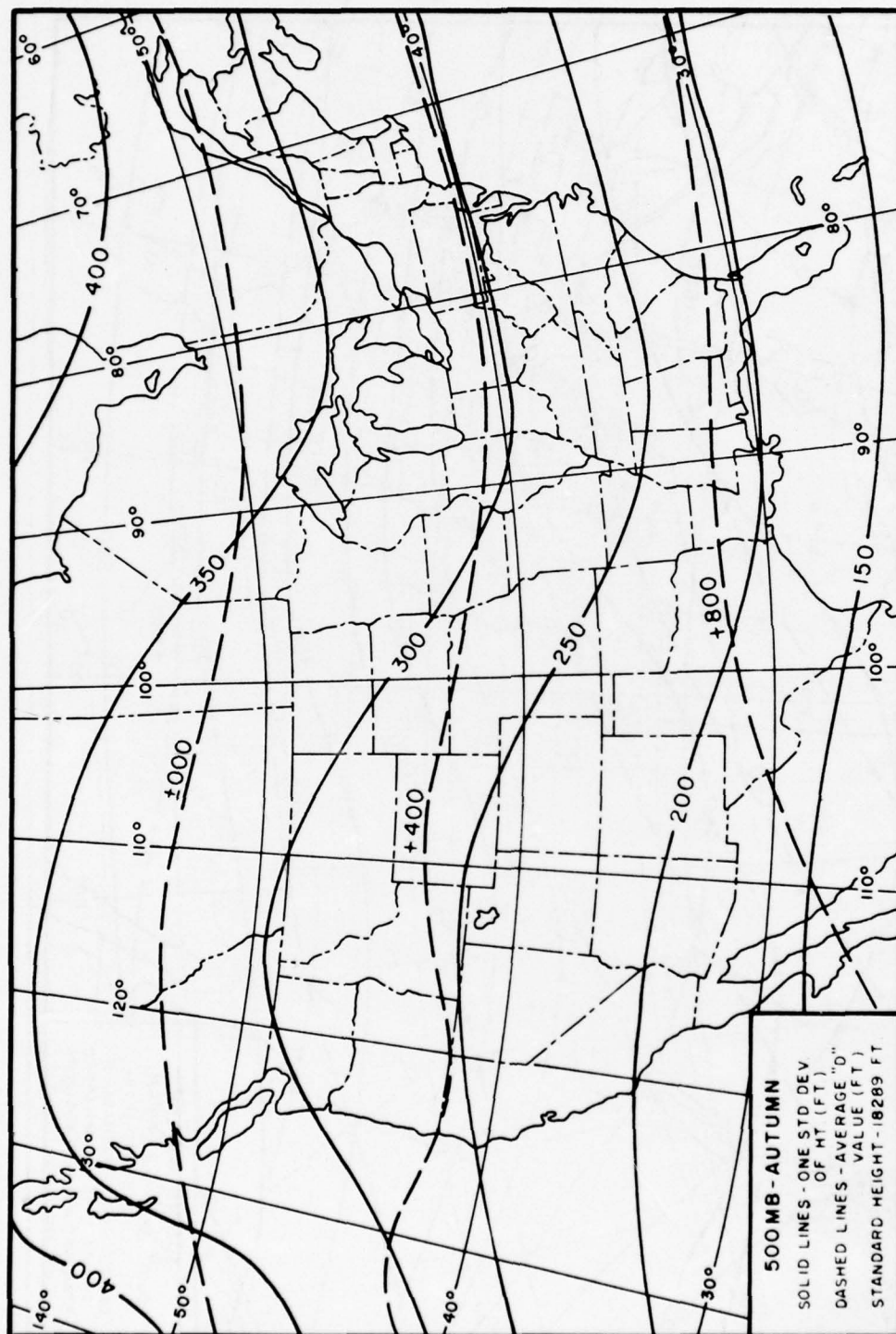


Figure 6. 500-mb Autumn Standard Deviation and Average D-Value.

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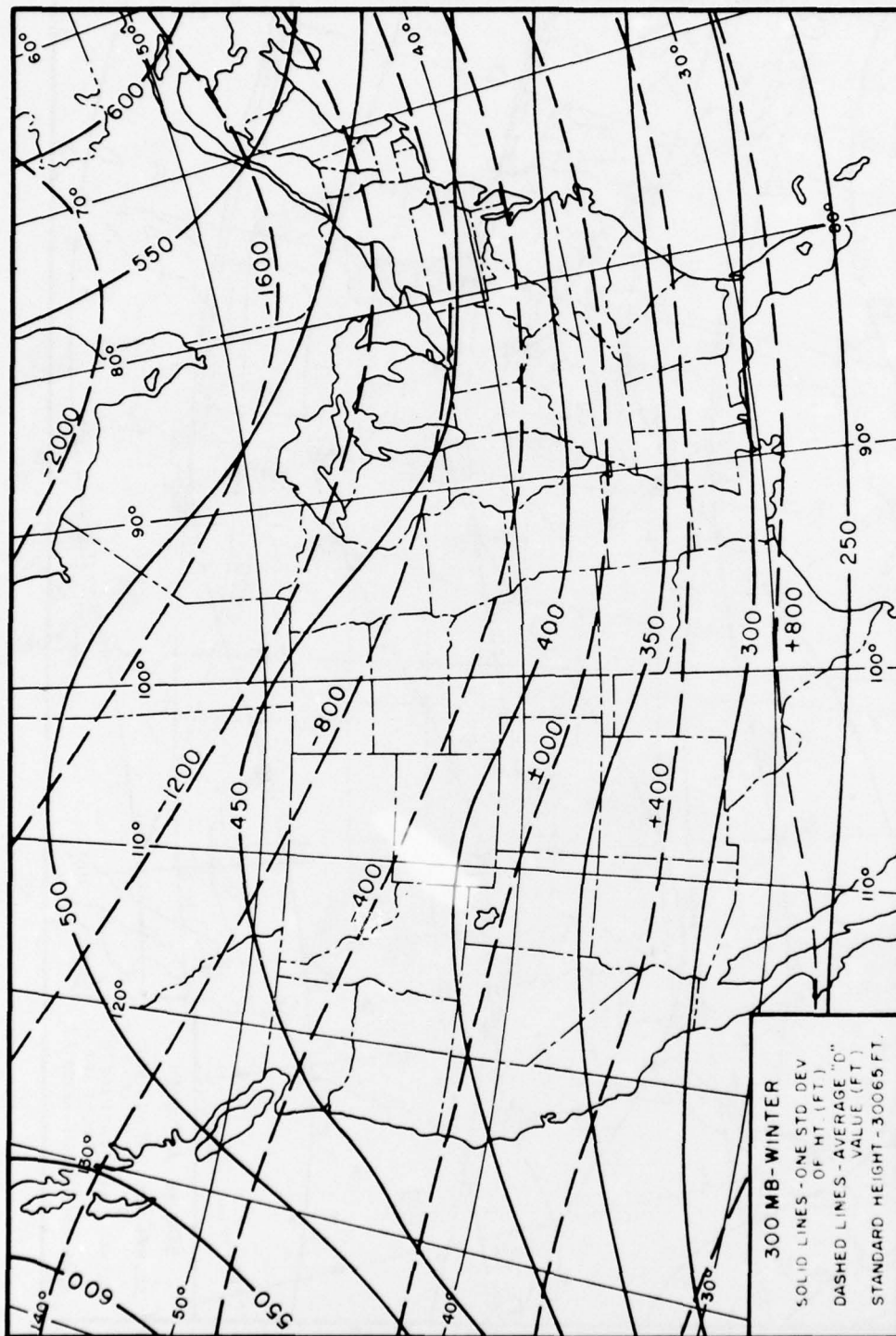


Figure 7. 300-mb Winter Standard Deviation and Average D-Value.

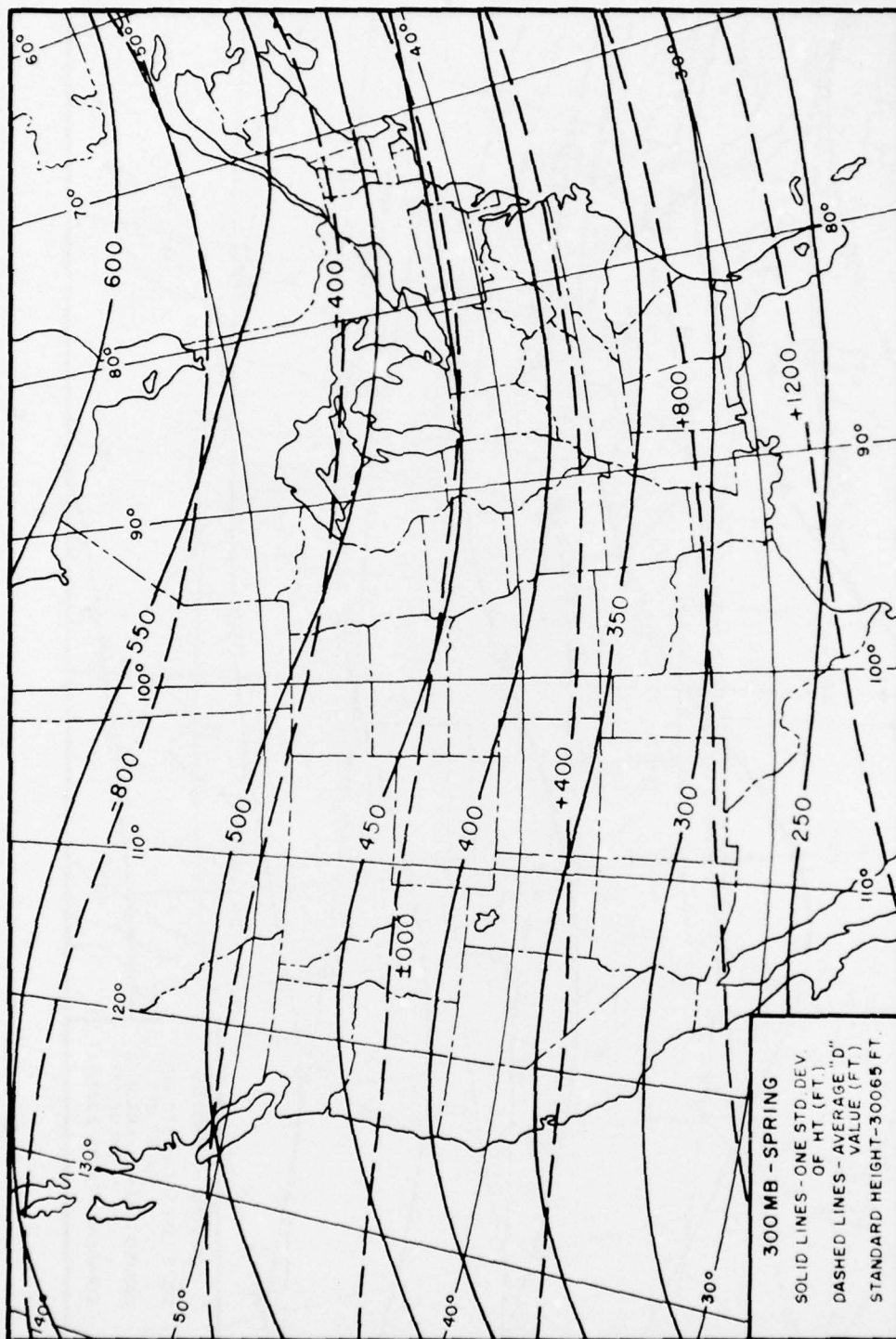


Figure 8. 300-mb Spring Standard Deviation and Average D-Values.

March 1965

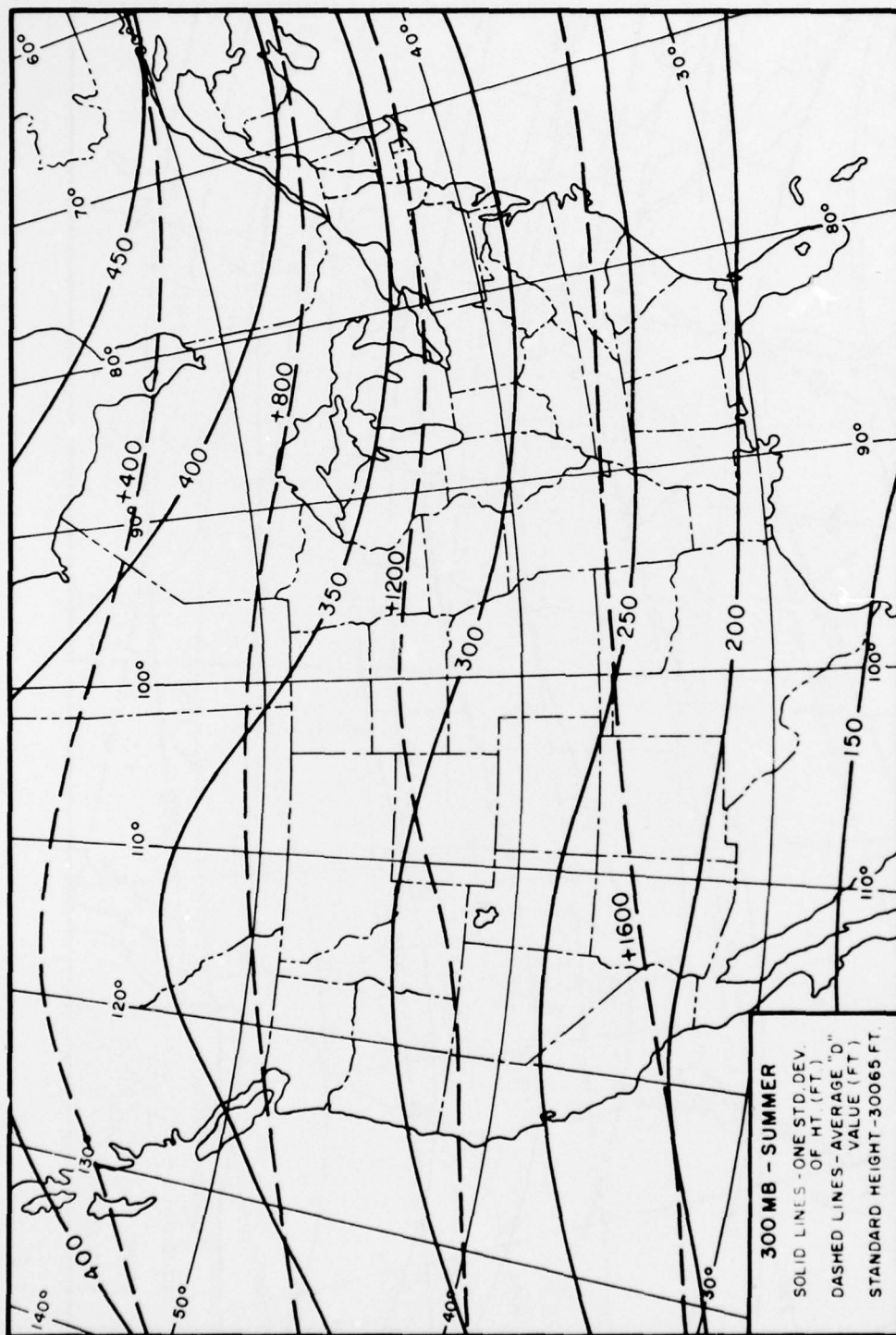


Figure 9. 300-mb Summer Standard Deviation and Average D-Value.

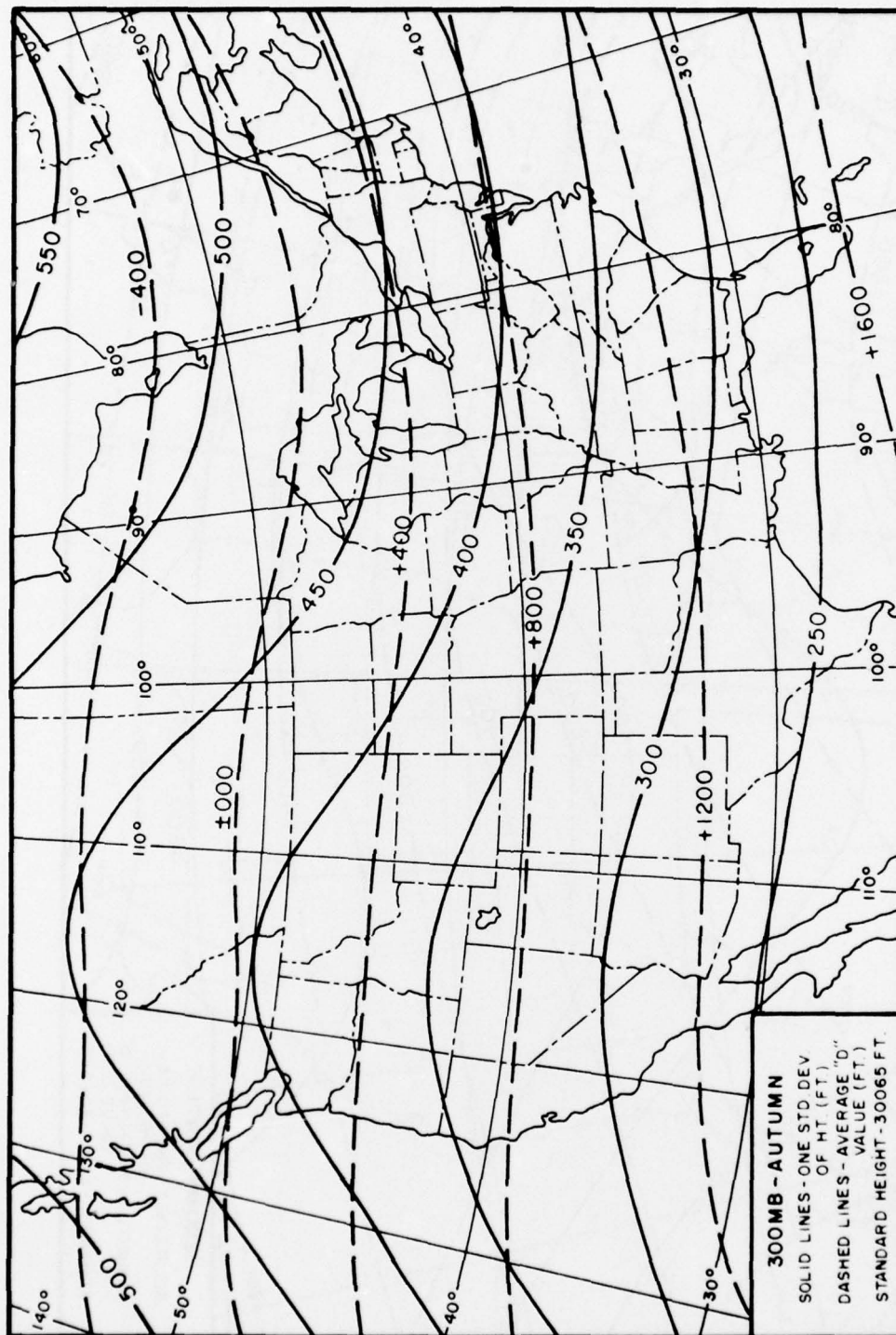


Figure 10. 300-mb Autumn Standard Deviation and Average D-Value.

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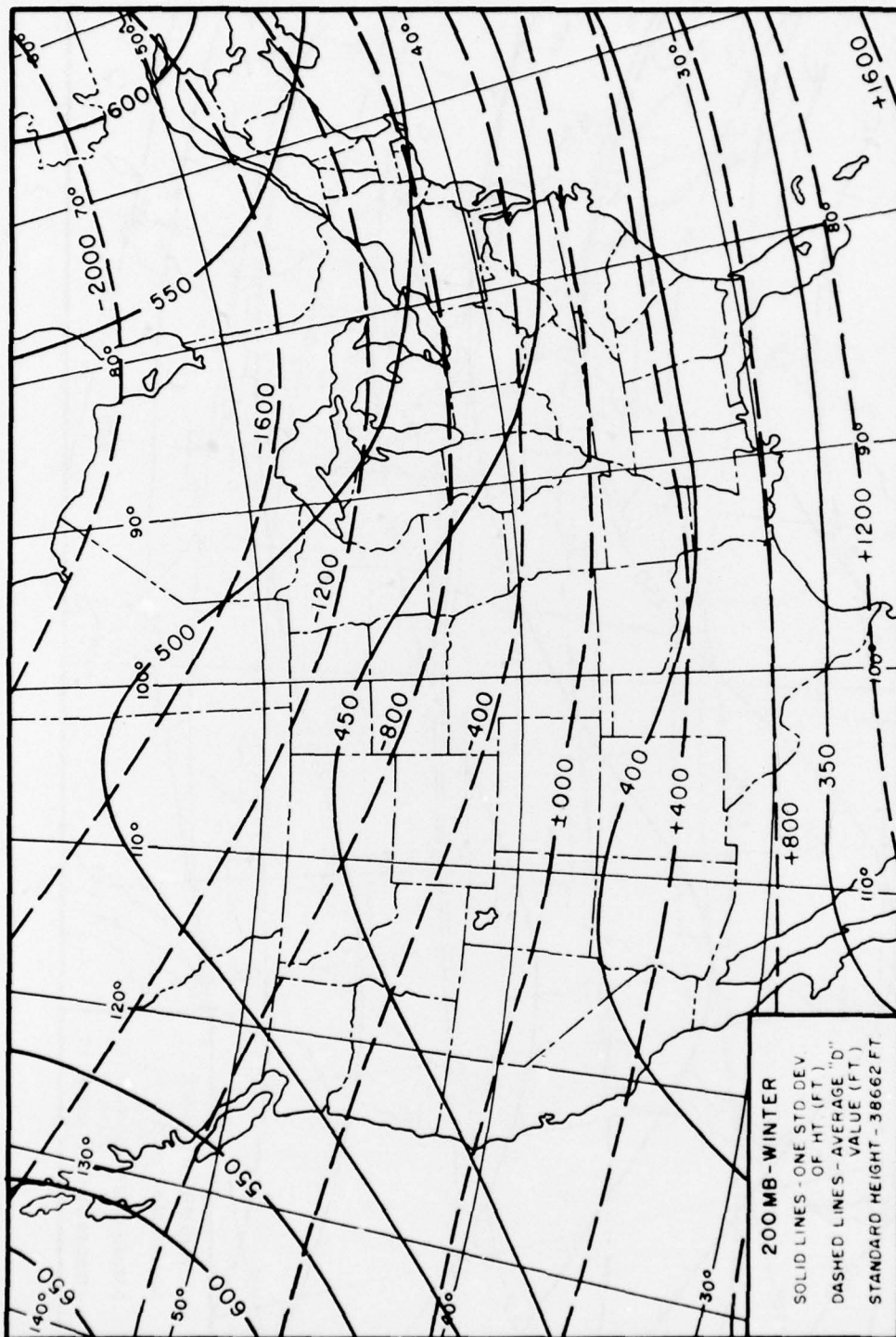


Figure 11. 200-mb Winter Standard Deviation and Average D-Value.

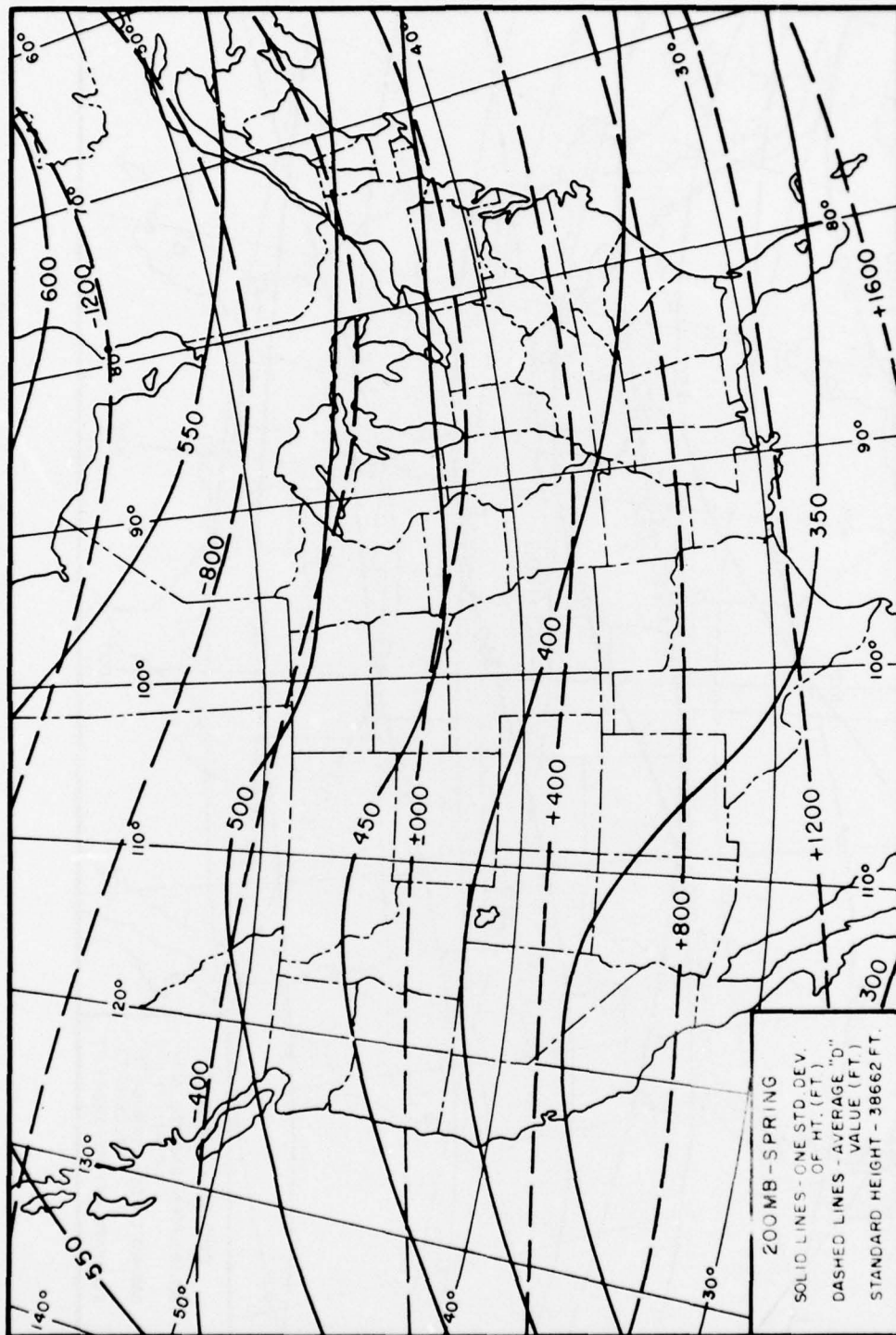


Figure 12. 200-mb Spring Standard Deviation and Average D-Value.

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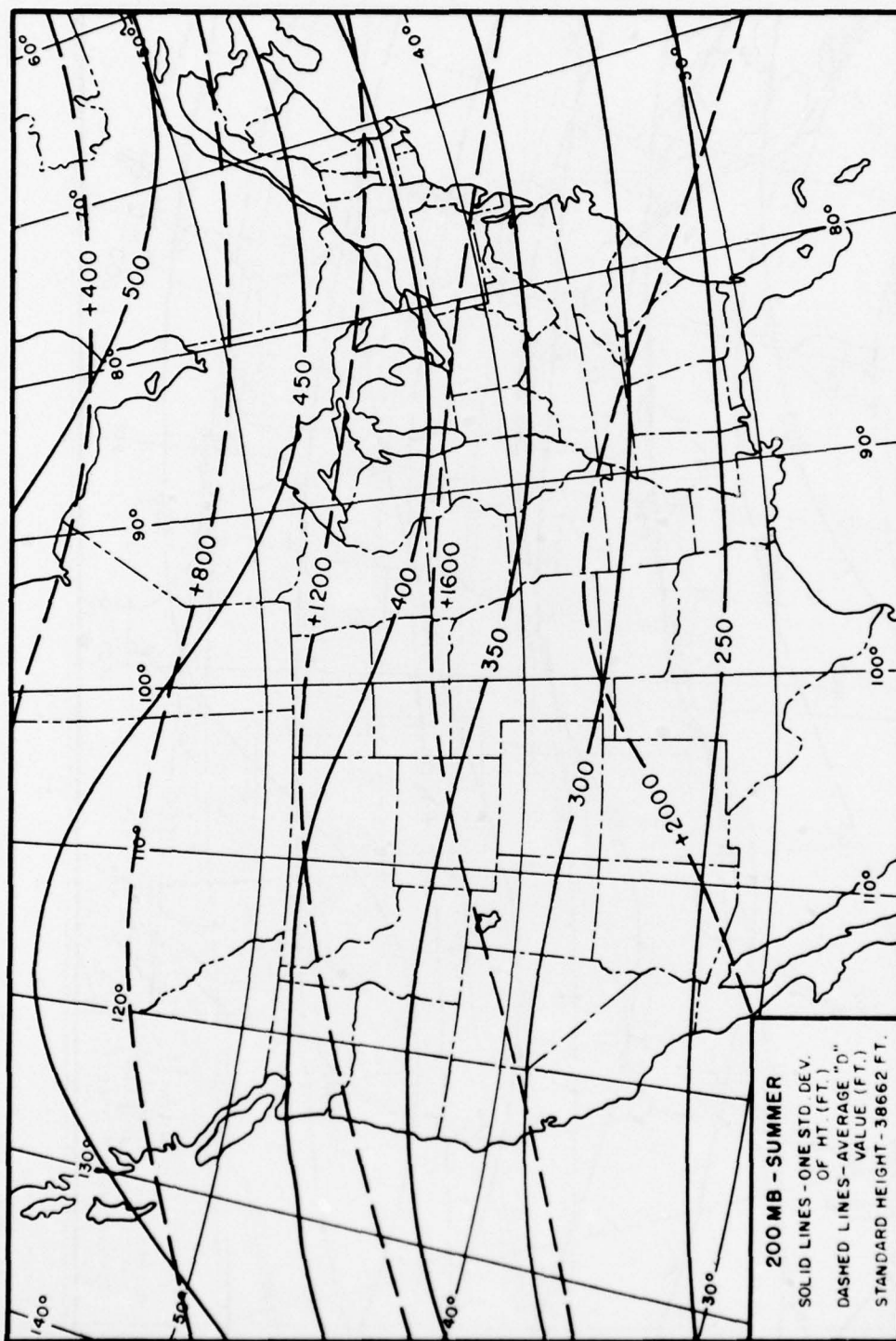


Figure 13. 200-mb Summer Standard Deviation and Average D-Value.

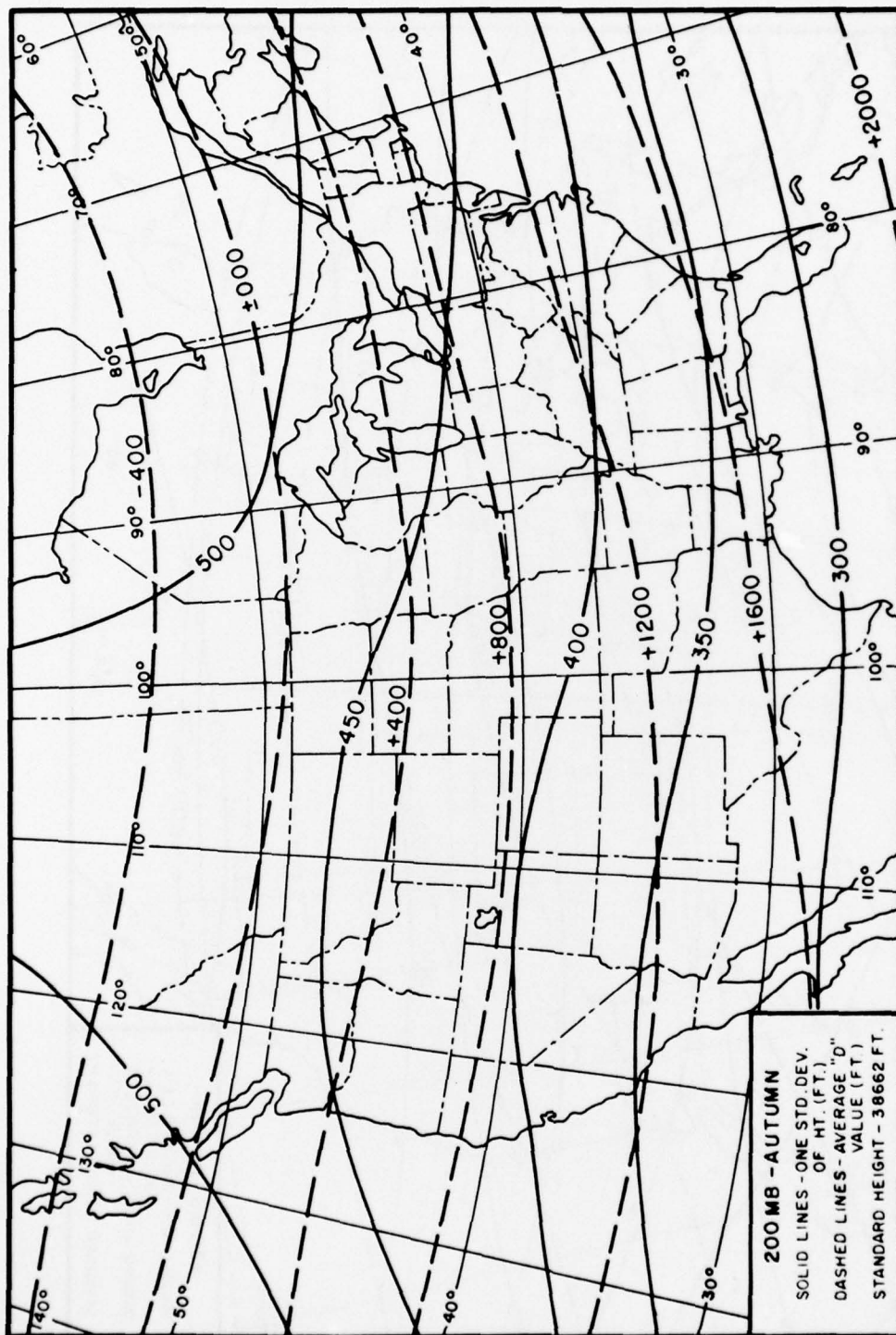


Figure 14. 200-mb Autumn Standard Deviation and Average D-Value.

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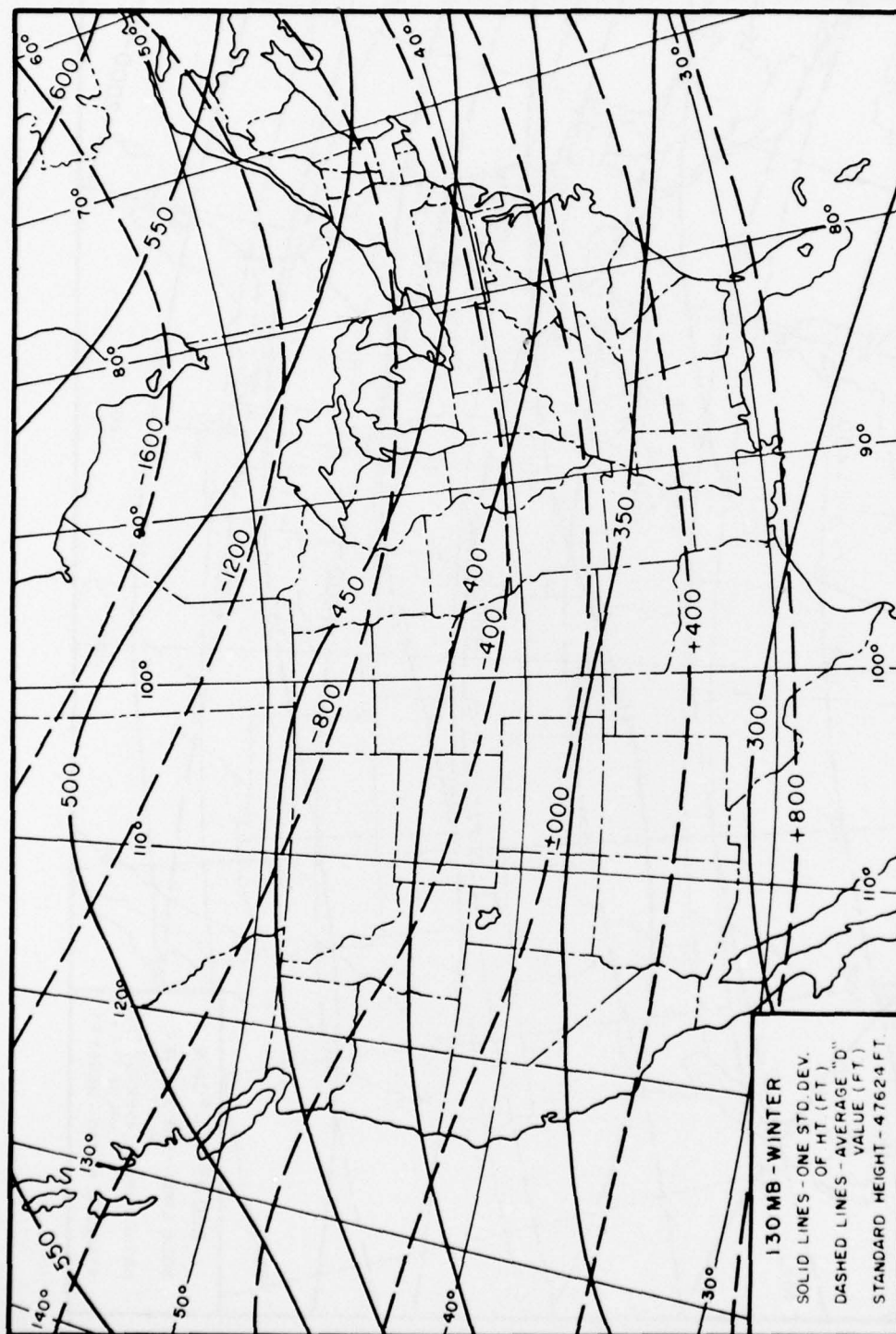


Figure 15. 130-mb Winter Standard Deviation and Average D-Value.

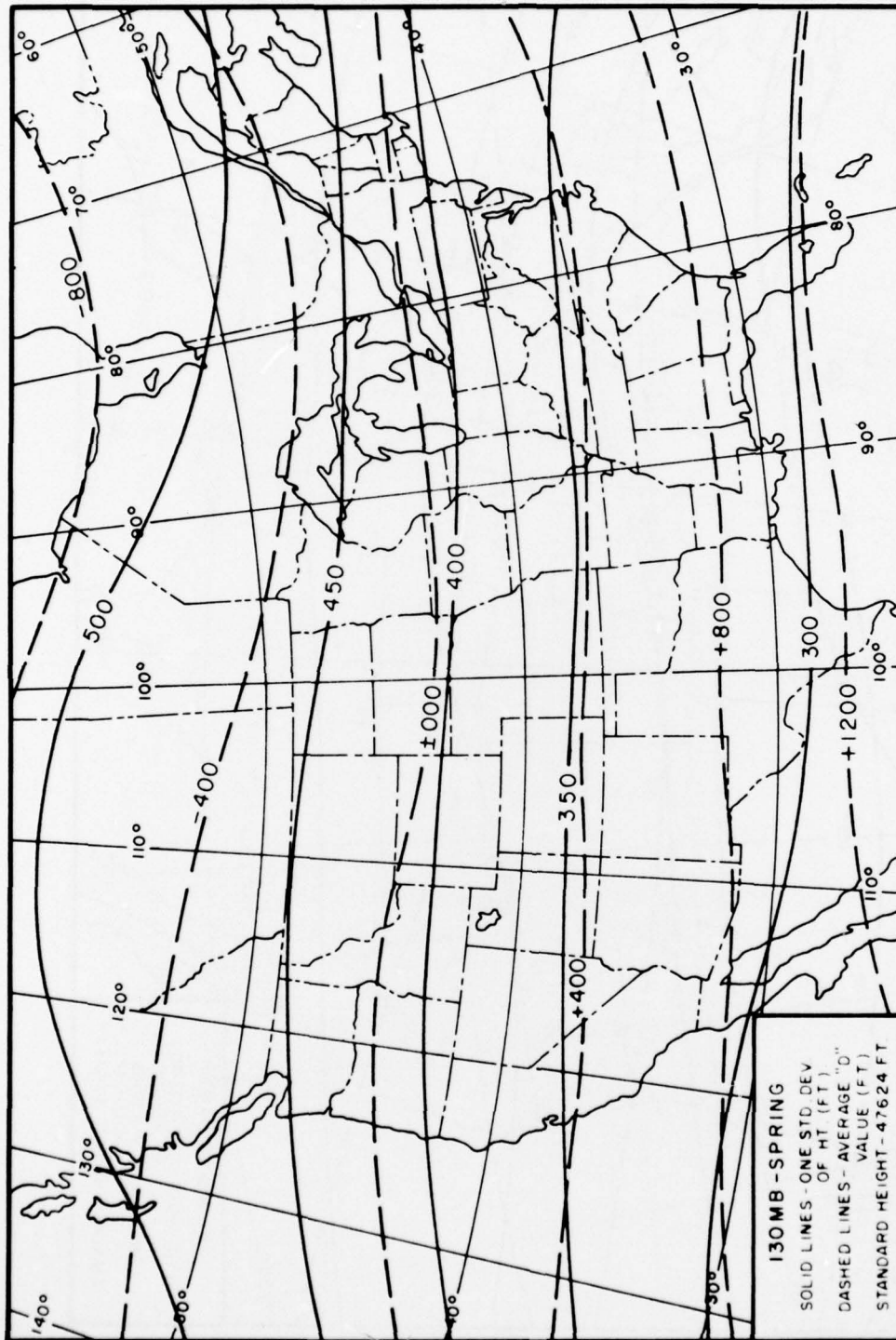
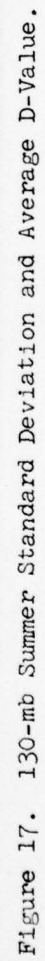


Figure 16. 130-mb Spring Standard Deviation and Average D-Value.



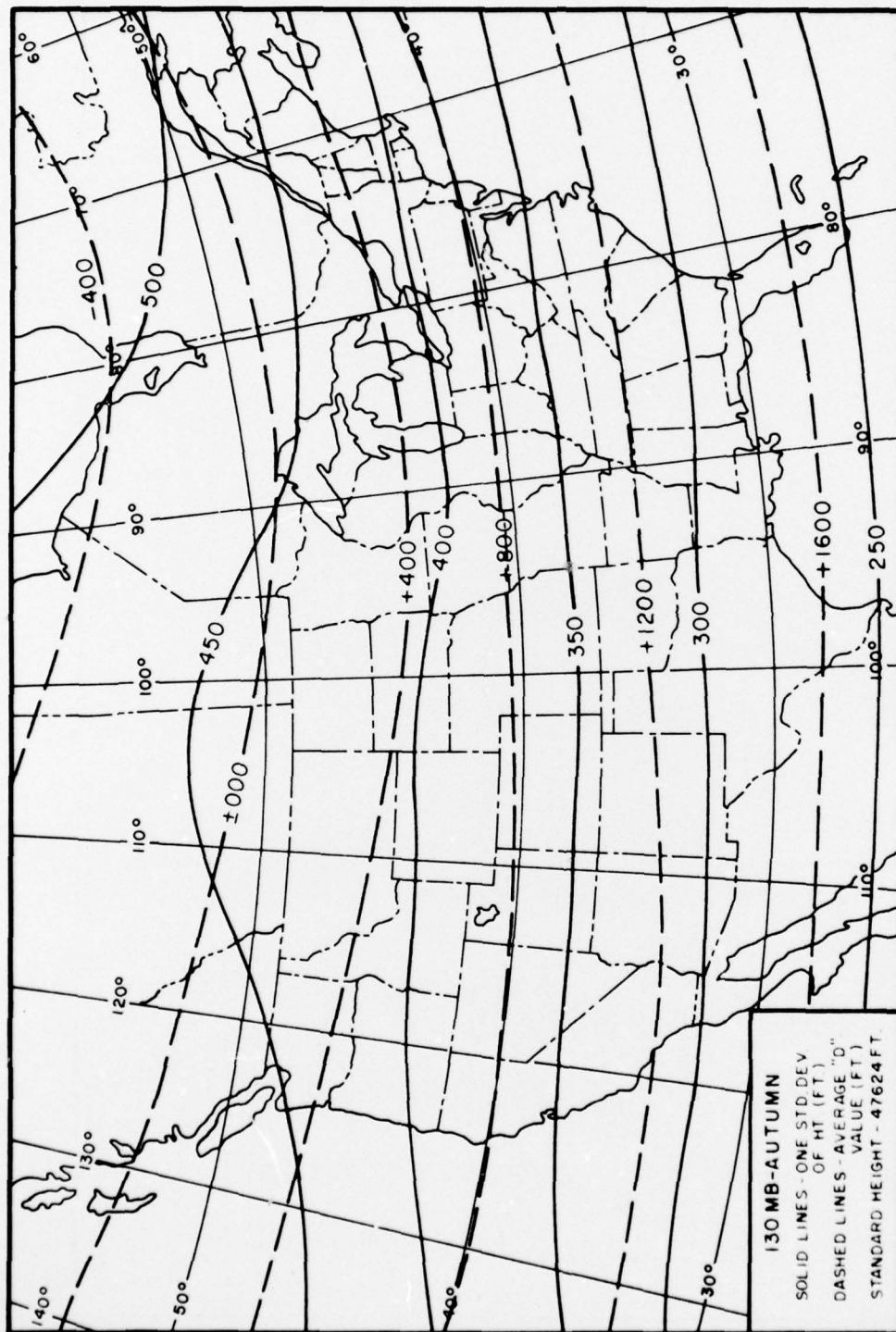
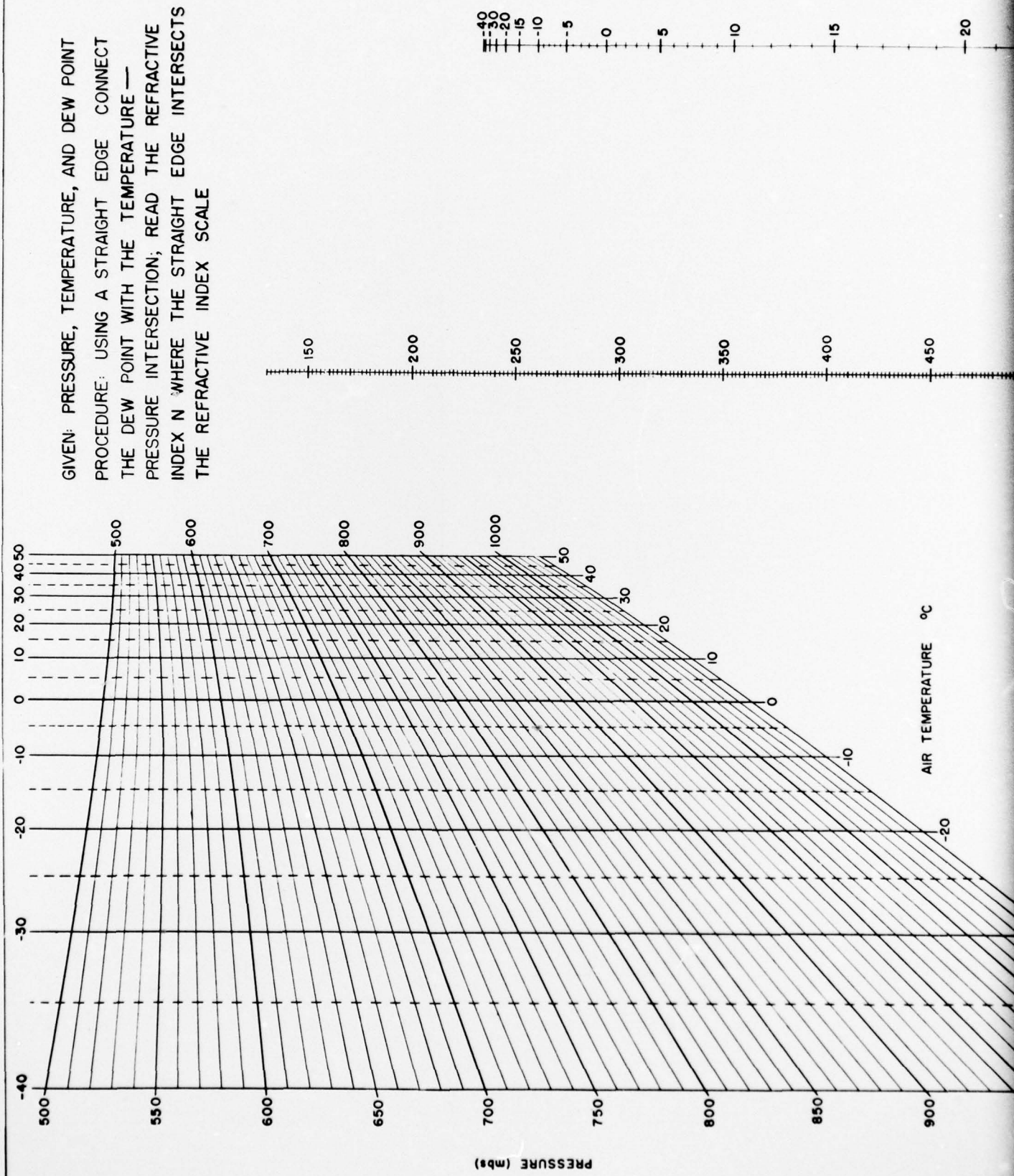
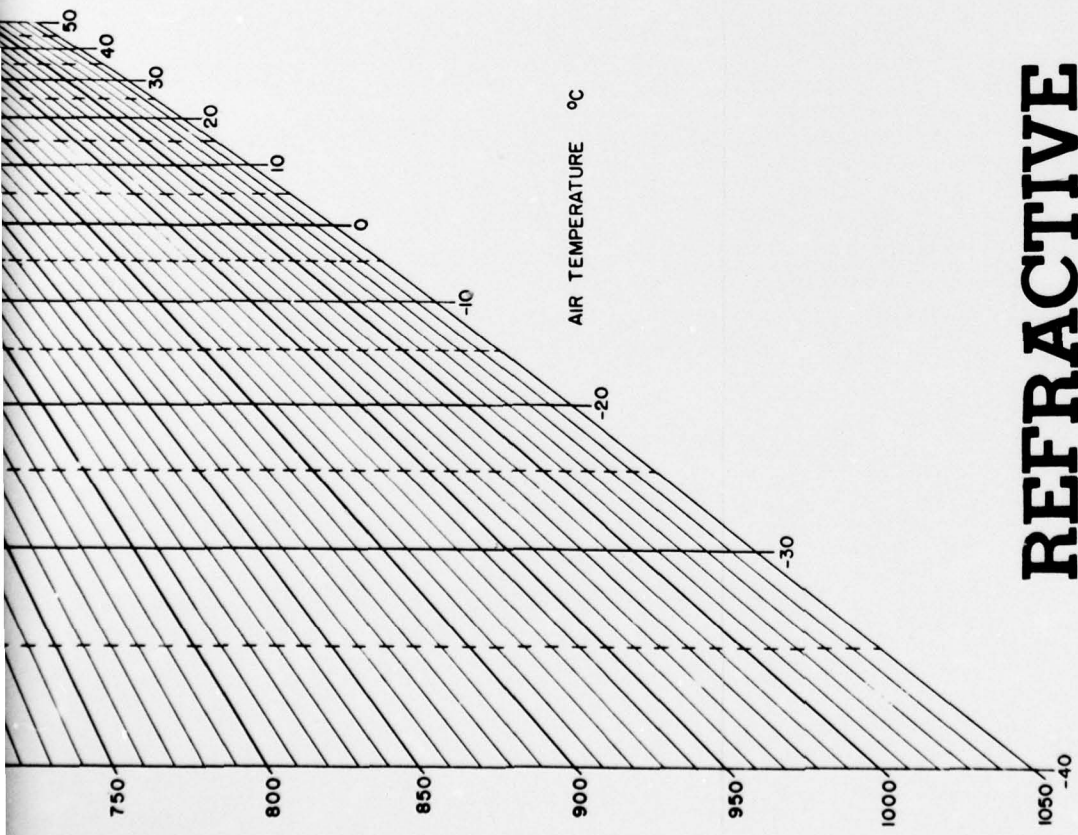


Figure 18. 130-mb Autumn Standard Deviation and Average D-Value.

GIVEN: PRESSURE, TEMPERATURE, AND DEW POINT
 PROCEDURE: USING A STRAIGHT EDGE CONNECT
 THE DEW POINT WITH THE TEMPERATURE —
 PRESSURE INTERSECTION; READ THE REFRACTIVE
 INDEX N WHERE THE STRAIGHT EDGE INTERSECTS
 THE REFRACTIVE INDEX SCALE





REFRACTIVE INDEX NOMOGRAM

$$N = (n-1)10^6 = 77.6 \frac{P}{T} + 373000 \frac{e}{T^2}$$

(APPENDIX D TO AWS TECHNICAL REPORT 183)

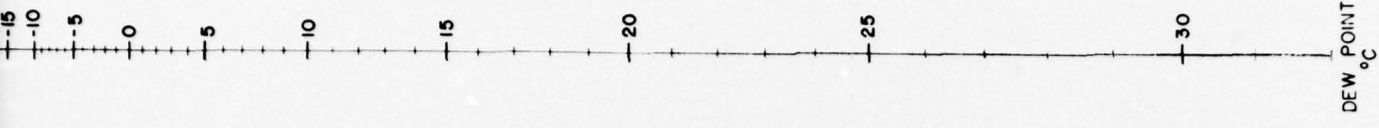


CHART I

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